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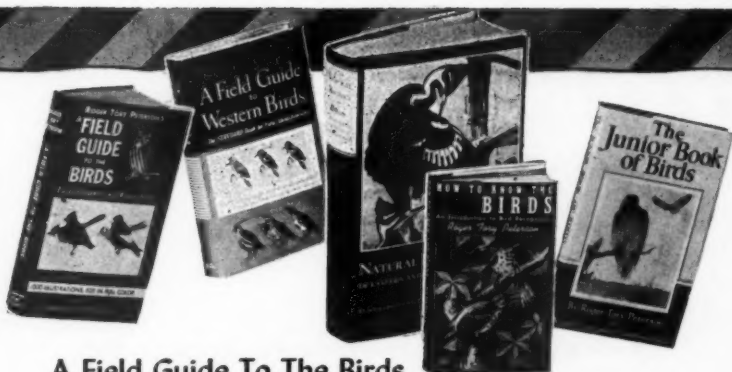
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ELEANOR ANTHONY KING

NOVEMBER 15, 1901—JULY 5, 1949

I deeply regret to announce the death of the beloved and inspiring editor of Audubon Magazine, Miss Eleanor Anthony King, on July 5, just as this issue of the magazine goes to press. While Miss King had been seriously ill for many months, she continued her active work on the magazine up to the final week of her life. Nor did she ever lose the cheerful, friendly spirit that all of us will remember who have known her. Every member is aware of the very great debt which the National Audubon Society owes to Miss King for the energy, vision and creative ability which she so unsparingly gave to the development of Audubon Magazine.

JOHN H. BAKER

Audubon

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Mrs. White-foot MOVES IN

What a Yosemite ranger-naturalist did when
a deer mouse family took over his bed





While the author lectured on mighty Sequoias before visitors inside the Mariposa Grove Museum, mighty mouse played havoc in the ranger-naturalist's tent. Photograph by the author. Left: White-footed mouse photographed by Karl H. Maslowski.

By R. G. Beidleman

IF YOU spend the summer in a recreational area like Yosemite's National Park, you're not surprised at being visited by relatives and friends who come anywhere from Chico, California, to Caribou, Maine. But when strangers move into your tent, take over your bed and help themselves to your larder, surely you have a right to feel that park hospitality has been strained, even though you may be the ranger-naturalist!

I had just moved into the two-room ranger-naturalist tent in the campground below the Mariposa Grove of Big Trees. Soon I began to sense the fact that I was not the only occupant. Throughout the dark nights the wooden floor boards of the tent echoed softly to the patter of tiny feet, a sound often punctuated by the rustle of papers from the food cabinet. Morning revealed no one, but holes in the raisin box and bread wrapper assured me that the pitter-patter had been no dream. The companionable midnight marauding continued for sev-



All the white-foot tribe spend much time in trees where they scamper about in search of seeds and cherry pits for storage; they are exceptionally capable in getting the seeds and buds of the outermost twigs that are beyond the reach of squirrels. Photograph by Karl H. Maslowski.

eral weeks, on a timid, furtive, unpretentious scale, and I actually began to enjoy the role of landlord and benefactor to the unseen creatures.

Because of their nocturnal habits and food preferences, I concluded that I was playing host to an unknown number of white-footed, or deer mice (*Peromyscus*).^{*} From ocean shore to peak top, there is hardly a region of North America that doesn't harbor some of these attractive wild rodents. White-footed *Peromyscus* with a vest of white and a soft coat of fawn brown, has a long tail, and large black eyes. Ordinarily he prefers a rotted stump in the forest to a home in some city dweller's basement. My midnight mice were probably doing just what many people do in summer — spending a vacation away from home.

The first indication that my four-footed visitors were getting out of hand came during the third week of our acquaintance. I had returned one evening from an insect-collecting trip in the foothills. Although I took time to put pins through the insect specimens I had collected that day, I left them sticking into a square of cardboard on the table rather than in a box. Throughout that night the tent echoed to the usual friendly pattering and rustling noises. But the sight that met my eyes the next morning made me feel anything but friendly toward my unseen room-mates. The seven insect pins I had stuck on the square of

^{*} For life-history cycle see "White-foot" by Alan Devoe in *Audubon Magazine*, Jan.-Feb., 1944.—Editor.

Deer mice often live in hollow trees and are among the most useful creatures that dwell in the forest. They destroy enormous numbers of destructive pupating larch sawflies and have been credited with this insect's control in larch plantations. Photograph by Allan D. Cruickshank.



cardboard on the kitchen table were empty! Scattered across the oilcloth cover were legs, antennae, heads, wings, and other reminders of my recent collecting trip. My mice had made a sneak attack which, as I found out later, was only a sample of things to come.

A few evenings later, after returning from a campfire talk at a nearby hotel, I threw back the blankets on my bed before climbing in for the night. Flying out of the blankets in all directions went a family of new-born white-footed mice! Not a little chagrined, I gathered up the five blind, almost hairless babies, put an old rag in a coffee can, and dumped in the squeaking mice, placing the can on the floor by my bed where, I felt certain, the mother could locate the nest. Sometime during the night she did, for the next morning I found the man-made nest unoccupied. Serves them right, I mumbled, as I went off to work.

That evening, as I prepared for bed, I had a feeling that I was again in for a surprise. Sure enough, as I threw back the blankets, the squeaking mice scat-

tered out over the bed. I dutifully gathered them up and put them in my nest. Determined to become a little better acquainted with their persistent mother, I set the coffee can on the floor by the bed where I could shine the flashlight on it with ease.

Turning off the gasoline lantern, I lay back and waited. After five or ten minutes, the pattering of feet started in the next room, then moved into the bedroom. The baby mice were squeaking, the pattering was approaching, and I anticipated a quick springing of my trap. But the mouse had a surprise in store for me, and the next thing I knew, tiny feet were scrambling across the bed I was lying in. I jumped up, flicked on the flashlight, and caught a glimpse of mother mouse disappearing into the front room of the tent.

It was plain that the mother was looking for her family where she had left them — on my bed. I moved the blankets to the other cot in the room, put the can containing the five young mice on my former bed, and resumed my vigil

From ocean shore to peak top there is scarcely a patch of countryside that doesn't harbor deer mice. In Yosemite National Park the author unearths the base of a rotted stump where a family of them had nested. Photograph by Reba Beidleman.



watch. I did not see what followed because I fell asleep before the mother mouse returned.

When I awoke in the morning, I found that mother mouse had taken the young away again. That evening it seemed inevitable that we should go through our regular routine. The young mice were in my bed again, and after I had gathered them up, I moved the blankets to the spare cot and put the can containing the mice back on my bed. Well pleased with my strategy, I assumed an on-the-elbow pose that I was determined to maintain until mother and young were joined under the beam from my flashlight.

The luminous hands of my watch showed the slow passage of the hours. About two in the morning the mother finally worked up enough courage to climb onto the bed. Over-anxious, I turned on the light and she disappeared. Then I had to wait another half-hour for her reappearance. The second time the light went on, she scrambled over the edge of the bed with a baby grasped in her mouth. She ran so rapidly that I was unable to follow her.

Her former timidity seemed to be turning into disregard for this bothersome animal with the floodlight, for on her third return, although I caught her in the light beam the moment she got onto the bed, she looked me coldly in the eye, then ran over to the coffee can, felt around until she got a youngster by the neck, and made off with it. To a human being's way of thinking the mouse's matter-of-fact actions suggested such musing as: "Well, it's getting late and I've got to get the babies out of there. I can't wait any longer for that big light to go to sleep, so I'm going on with my job and the light be hanged!"

While she removed the remaining mice, I watched her. She ran to the edge of the bed with a baby in her mouth, slid down the leg and ran around the bed and across the floor of the tent to the far corner of the room where several

orange crates used as a dresser were standing. Then she climbed up inside one of the boxes over the clothes and through the crack in the back of the crate which was pushed up against the wood and canvas frame of the tent wall. Having deposited her burden, back she scampered for another. After all of the young had been removed from the can on the bed, I checked behind the orange crate to see where she had taken them. Apparently the 2x4 tent frame behind the box was only a transfer point. By the time I made my search, three of the mice had been moved out of sight.

The next morning I admitted temporary defeat. The first round had gone to the mice. I folded up the blankets, put them in a mouse-tight box, and reluctantly returned to using my sleeping bag at night. Things quieted down for a few days. Again, from the front room, there was the patter of little feet, which was music to my ears.

The author's wife looking at a damaged sweater, a bedspread, blouses, handkerchiefs and wool mittens that the mouse family sampled for nesting material. Photograph by R. G. Beidleman.



In early August my wife returned to Yosemite from an eastern trip. Her arrival seemed to fill our mouse family with new enthusiasm and curiosity, for the first night after we replaced the blankets on the bed, mother mouse set up housekeeping there. As I folded back the blankets that night, I assured my wife that I was positive the mice had left, as they had been inactive for several days. The little squeaks that accompanied my moving of the blankets proved very difficult to explain in view of what I had just said.

We transferred the mice, now about ten days old, into their coffee-can nest and went to bed. No sooner had we turned off the gasoline lantern than their mother laid siege to our cots. We could hear her running across the

Right: White-footed mouse photographed by Karl H. Maslowski.

The beginning of life for a baby white-footed mouse may happen at any season, or almost anywhere! Usually nesting in a mole's abandoned tunnel, a deserted chipmunk burrow, or in stumps, hollow logs and trees, this Yosemite white-foot cradled her youngsters in the furry hood of the author's parka. Photograph by R. G. Beidleman.



wooden floor, up the frame of the tent, feel her jump on the bed and begin her scurried exploration. I sat up, turned on the flashlight, and away she ran, only to repeat her performance as soon as the light went off.

The next evening we again found the young mice in my cot and spent an active night keeping the mother out of my hair. This harassing seemed to discourage her, for a new nest was built in the folds of a black wool sweater of mine on the top shelf of the orange-crate dresser. Into this nest went not only five growing mice, but tattered pieces of sweater, bedspread, blouses, handkerchiefs, stockings, and wool mittens. We destroyed this new nest, too, hoping that the family would take the

hint and move their base of operations elsewhere.

When I returned from work the evening after we had broken up the orange-crate nest, my wife led me into the corner of the bedroom where we hung our clothes from a steel pole between two tent rafters. She told me to look at my parka. There in the fur-lined hood was a mouse nest. My wife informed me that while she had been moving clothes during an afternoon of cleaning, the family of *Peromyscus* had scrambled out of the parka, helter-skelter.

As I mulled over this recent bit of mouse annoyance, my wife told me of their latest activities, making the emphatic suggestion that, National Park policies notwithstanding, the mice were no longer under the protection of the law. We must decide *who* was living in *whose tent*, and for how long!

That night, tracing mouse squeaks, we rounded up two of the five young on the floor back of the orange crate. They were transferred to a new, larger, man-made nest which we put on the ground under the tent. The next day we caught two more young in my knapsack under the bed, where the mother mouse had been storing raisins. The wife of the ranger-naturalist next door had been through a similar mouse experience the previous summer. She came to our rescue and donated an old torn pillow and, what is more important, took over the job of feeding the babies warm milk from an eye dropper.

We still had the mother and one young one to find. We could hear the mother running about the tent at night, and often set after her with an insect net. We cornered her several times, but she always managed to escape. Meanwhile, at supper one evening, we heard something scrambling in an empty two-pound coffee can—here was the fifth baby mouse!

By this time there was some question in my mind about who was becoming more desperate, the mother mouse or

my wife. At any rate, the showdown came when my wife returned from the store with a mouse trap. I was certain that if the National Park officials found her trapping within the park boundary, I would lose my ranger-naturalist job, but when she informed me how much of my month's salary was being spent to replace clothes ruined by the mice, I decided to take the risk.

That night the trap was set in the middle of the floor. The patter of feet began as soon as the light went off, and within half-an-hour, before either of us had fallen asleep, we heard a sharp snap. But instead of an agonized death squeak, we heard the trap being dragged around the room. Excitedly we jumped up and found mother mouse was being held by both back feet. We released her and put her in a coffee tin until morning, then transferred her to the pillow nest with her babies.

Here the story should end. For the first time in weeks, our nights were undisturbed by pattering feet, and we again seemed to be the sole occupants of the tent. Mother and five young mice were doing well in their new home, and with the return of the mother mouse, our neighbor retired from the job of foster parent. When the young mice were old enough to be put on their own, we took the family into the forest away from the campground and turned them loose.

But before the end of the season, we again heard night noises in our tent, samples were eaten out of a bread loaf, dainty chocolate track marks appeared atop a can of chocolate syrup, and the handwriting on the tent flap only too clearly spelled "visitors." This time there was no argument! Within two days we had packed, taken down the tent, and headed for our winter home in Colorado. And, quite possibly, from their daylight hiding place beneath the tent frame, a family of black-eyed *Peromyscus* were grinning and waving white-footed paws in farewell.



Photograph by Paul F. Runge

S U M M E R D A W N

By Haydn S. Pearson



WHEN time is fulfilled and the first thin, silver-gray sheets of light reach up from the ocean's edge, night's dark coverlet begins to unravel over the beaches, dunes and spreading marshes. During the hours earth is turned from the sun there is peaceful brooding beauty along the strip that lies between the ocean and the main-

land. There are soft strange sounds during a quiet, warm summer night but they are in keeping with the mysterious darkness. If one sits on a dune crest with a gently sloping beach before him there is a steady contralto murmur of small waves breaking and spreading on the hard-packed wet sand.

Among the dunes, muted noises



scratch against the darkness. At irregular intervals come the lonely eerie quawks of night herons as they wing their way through the night or sit complaining in the groves of pitch pines. Occasionally the hoarse, grunty bark of a red fox comes from a salt meadow. In quiet harbor channels buoys' lights are tiny pin-pricks against the dark bed of the sea. On craggy headlands and on islands along the coast, lighthouse beams write repeated hypheens on night's page.

During the hour before dawn, silver light spreads upward from the eastern horizon. Stars that were jewels of deep red and rich gold, blue-green and amber-orange change to lighter, fainter shades. Minute by minute the dunes emerge from the darkness and the line of lonesome beach stretches farther away. Where there was previously only the sound of the water one now sees the dark-gray waves pushing into the sand and the gray-white crests of the low rollers a score of yards from the

of planes. A song sparrow tosses his three tentative notes at the dawn and follows with his familiar aria of rollicking melody. Crows hold complaining caucus in the pine groves that lie in hollows among the sand-driven windrows. The thin, shrill piping of a sharp-tailed sparrow sounds from among the dead thatch grass at the mouth of a black-banked marsh creek.

Minute by minute glory climbs in the eastern sky. A thin stream of cirrus-stratus clouds above the horizon turns from cream-gray to gold and the sky above to a brilliant blue-green. Like a great fan the light burgeons from the water's edge toward the zenith. At horizon's rim one can tell the spot where the sun will rise because of the deepening color. It is a concentration of rich dusky rose shades, lightening to pink and gold and tan along the feathery scalloped edges.

The new day's light paints pictures of beauty. The humped drumlins in

minute by minute glory climbs in the eastern sky

shore. Rod by rod the marshes come into view followed by the dim outline of the mainland that slopes down to the area where great wind-driven tides of spring and fall send their surging waters.

As time draws near for the sun to lift from the eastern horizon there are a few minutes of intensely brilliant, bluish-gray lightness. If there be enough vapor in the air to make a spectacular sunrise, but not fog to conceal the waters and land beside it, the period of 15 minutes before the red arc appears is a time of poignant loveliness. The gulls are flying by on their way to favored feeding grounds. Some go singly, methodically flapping their wings a few yards above the water; some are in groups of half a dozen. Occasionally a score or more fly high in the air reminding one of a geometric formation

the marshes resemble sleeping dinosaurs; their crests of birches, poplars, sumacs and pines catch the first rays that reach over the dune tops and for a brief interlude, the heaps of glacial deposit wear bright headdresses. The rippled sand of the sloping dunes reminds one of miniature, petrified tangle waves. Here and there the wind has driven grains of heavier quartz particles into concentrated patches. As the slanting rays of light hit these, they are stippled pools of blended purples, violets, blue, chestnut-reds and rich browns. There's a deep green blanket on the marshes. The flashes from the lighthouses suddenly cease. Lobstermen poke along the coast. The brightly-painted lobster buoys are dots of color in the blue-green water.

Another day of activity for men and nature has begun.



A Lake for the Lincoln C

By Virginia S. Elfert

IN THE November sunshine, 2,000 Canada, blue, and snow geese bugged, flapped their wings and paddled about on a cold, sparkling lake. Five miles to the north, the dome of the Illinois State Capitol building in Springfield, Abe Lincoln's home town, gleamed above cornfields and woodlands. The winds of autumn suddenly blew down on the blue water of the lake, roughing its surface. In the sunlight, white-plumaged geese sparkled like snow drifts. To the people looking down on the geese

from a hill above the lake, a miracle had come.

Sixteen years ago in this very spot there was no lake and no geese. Then, there was only scrub pasture, cut-over woods, and a small and muddy creek winding sluggishly through sparsely wooded valleys to join the still more muddy Sangamon River not far away.

In those days there was a drouth upon the land. In the spring of 1934 there came dust on winds from the West, so that the springtime woods were ugly with grit on new leaves and the migrant warblers hurried on. The air was gray



They said he couldn't make a lake on a dry prairie—for people and for waterfowl.

Spaulding Dam, once looming mightily and a little ridiculously above the dry prairie, now backs lake waters along 57 miles of shoreline. Photograph courtesy Illinois State Museum.

Within sight of the capitol dome of Abe Lincoln's hometown, a prairie lake now supplies pure water for a city and provides a playground for birds and people. Photograph by the author.

In Country

and thick, and the grasslands turned dry on the clay hills above Sugar Creek and Lick Creek long before midsummer came to the Lincoln Country. There had been years of drouth before, but they were not as bad in Illinois as they were in the West, yet they were bad enough. The Sangamon River was lower than it had been in many years and its murky water had to be purified and settled before it was fit for the people of Springfield to drink. If the river failed, there would be no water for a growing city of 70,000.

In 1933, Willis Spaulding, a far-seeing practical man, who was at that time



city commissioner in charge of the city water, light and power company, planned a lake for the Lincoln Country. In spite of opposition, a bond issue was

put through and work rapidly went forward to clear the land for the lake bottom. The two creeks, Lick and Sugar, formed a crescent-shaped valley with many ravines that drained an area of 265 square miles. The land was bought, the trees in the lowlands felled, and the raw bottom of a lake was ready for the water.

But the water did not come. In 1933 and 1934 there was little rain. Those who could not conceive a lake in this part of the country scoffed and the unbelieving sneered. There could never be a lake on a dry prairie! "Spaulding's Folly" they called it — 12 miles of lake bed and no lake!

At last, in the autumn of 1934 the rains came and the drouth was ended. Far below the concrete dam, which stood up mightily and a little ridiculously above the horseweeds, a small pond formed. Suddenly, in November, there were ducks upon it — scaups, mallards, and blacks — forerunners of hordes of birds which were to come, and the realization of the attraction of a new lake for wildlife. Thousands of redwings gathered in the weeds, but by the next spring there were no blackbirds at this spot, for in their place stood a lake. During the winter, rain and melting snows slowly filled the lake basin. On May 2, 1935, the water roared in a great white cascade over the dam and down into the Sugar Creek flood-plain to the north.

Here was Lake Springfield, a lake 12 miles long upon the prairie. The shore line was 57 miles, counting all the inlets and bays; the depth ranged from 40 feet in the deepest spot near the dam and the powerhouse, to a foot or so in the shallows of the marsh area at the west end, called the Breeding Area.

Lake Springfield was created principally to supply pure water and electric current for Springfield and surrounding towns. Secondarily it was to be for residence and recreation — boating, swimming, fishing, picnicking — with specified wildlife areas permanently set aside

for protection. The whole area is a wildlife refuge, with no hunting allowed within the lake boundaries.

Plantings were made in what once was worn-out farmland. The city landscape architect, aiding and abetting plans of Mr. Spaulding's, planted native trees and flowers — miles of rambler roses on the fences which separate nearby farmland from lake property; irises on embankments along the roads; lilacs in sunny places; mallows in the marshes; sweet gums in wet ravines, and cypresses in wet places alongshore. Scotch pines were planted in eroded clay pastures, dogwoods, redbuds, and shadbush planted in masses against a backdrop of taller trees. The Lincoln Memorial Gardens, laid out on the east shore by the Federated Garden Clubs of Illinois, were planted with Illinois trees and shrubs and wild flowers, with trails left for hiking and council rings for outdoor meetings. The splendid arches of the Vachel Lindsay bridge honor Springfield's noted poet, and the long span of the bridge on Route 66 is an impressive gateway to the city. There are camps for boys and girls, large picnic areas which can seat 5,000 people at a time, bathing beaches whose waters are separated from the lake proper, extensive residence areas, a tree and shrub nursery, and a power plant.

It had been a long time since there was a lake in the Sangamon country. Not since the days of the wet prairie and the last of the post-glacial lakes had there been so much water here. Since those vanished days, the water birds had flown high on migration and if any came down at all it was only briefly on the Sangamon River. Birders in the middle part of Illinois had to make an expedition to the Illinois River and its swamps and lakes 60 miles from Springfield in order to see water birds.

Now that a large lake has been created in the Sangamon country, the whole area, in spring, late summer, autumn, and winter, becomes a place whose excitement is never-ending to the people

The marsh area around the west side of the lake, photographed by the author, is alive with birds.



King rails nest in the grassy marsh.
Photograph by Samuel A. Grimes.

Wood ducks nest in the big trees on shore and bring their young to feed in the great lotus beds. Photograph by the author.



who come here, often from afar, to look for birds. Here and there in Illinois there are now other man-made lakes — at Decatur, Franklin, Hillsboro, Bloomington, Jacksonville, Danville — but perhaps the prairie lake at Springfield holds the greatest variation in topography and size of them all.

November and March are the times of the greatest density of birds on the lake and in the marshes; of ducks and geese, of gulls and terns; loons and cormorants. The geese like to come to the broad bay west of the Lincoln Gardens, in the region of the island whose gravelly shores are a place of rest and comfort on a windy day. The snow geese and blue geese have varied from a hundred or so in 1938 when they first ap-

peared, to several thousand. In 1948, an estimated flock of about 2,000 came to Lake Springfield. Sometimes they come so close to the east shore that with care one may creep down the slope, under cover of pines, and come out upon the geese — so close that one might see the glint in their eyes and the smooth perfection of feathering upon their breasts and backs. And then the tumult of wings and voices when they fly up and out to the middle of the lake again! The Canadas, seldom more than 200, always stay aloof from the snows and blues. In 1948 many of the geese did not leave by the end of November as they always had done, but stayed on and on during the mild winter. Snows and blues were seen for the first time on the Christmas bird

There are camps for boys and girls, large picnic areas which seat 5,000 people, and bathing beaches whose waters are separated from the lake proper. Photograph courtesy Illinois State Museum.

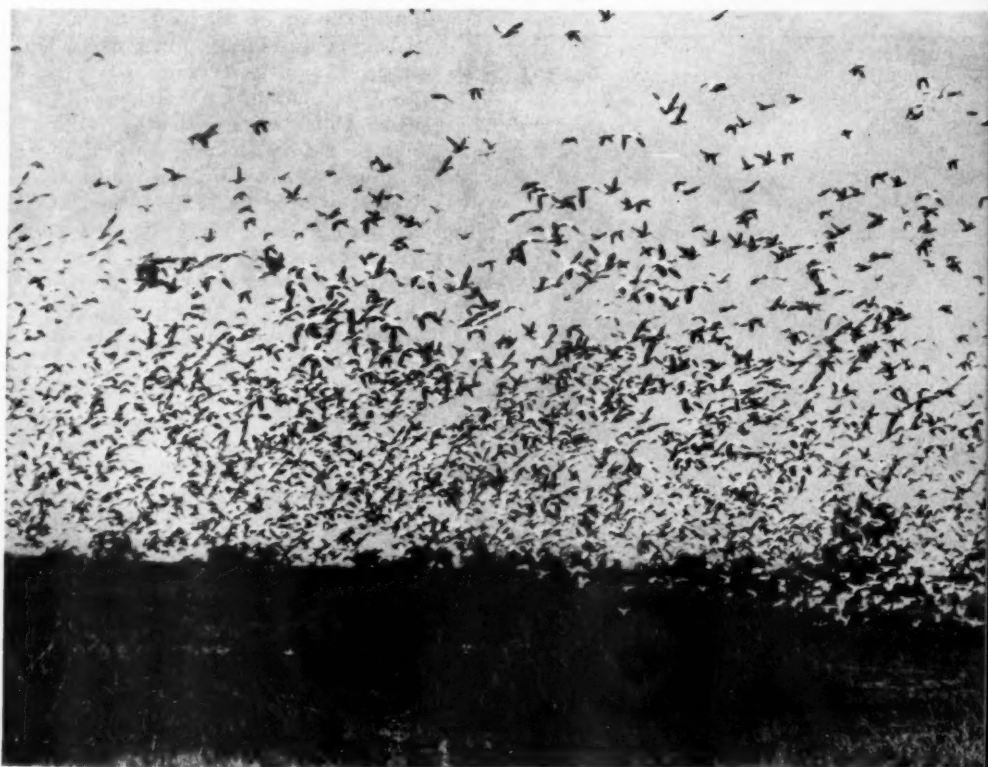


census, and were reported as late as February 4, 1949, but when the lake froze solid from end to end, the geese vanished. They had subsisted very well on pickings in the nearby corn and soybean fields.

Of the hordes of ducks that populate the lake during migration, mallards and black ducks are most abundant. Sometimes there is an estimated 10,000 or more, but lately, there have been fewer sitting on the water or flying out to the farm fields for food. In November, if one sits in his car on the point opposite the broad bay and the island, he may see, brightened by the late afternoon sun, three kinds of geese and many ducks in a jostling multitude — mallards, blacks, pintails, scaups, goldeneyes, redheads,

canvasbacks, buffleheads, and many others. If they are not all present in the great bay, a ride around the lake will reveal groups here and there, from the dam to the marshes. There are three kinds of gulls — ring-billed, herring, and Bonaparte's—soaring in the air or settling on the water like strange high-tailed white ducks, cormorants swimming or perching in the Kentucky coffee trees on the island, horned grebes and pied-bills diving and reappearing, a loon or two far out. Across the waters, clearly visible six miles away, the buildings of Springfield stand up sharply and the capitol dome catches the late sunlight. Two thousand gray and white geese rise magnificently into the sunshine and head out to the soybean fields for a

"Two thousand gray and white geese head out to the soybean fields for a final meal." Snow geese photographed by Allan D. Cruickshank.





Up the channel come the terns—rakish-crested Caspians with blood-red beaks. Photograph above by Edward F. Dana; below by the author.



final meal before returning to the lake to sleep.

The marsh area far around on the west side of the lake is alive with birds during much of the year. So far, the nesting of many water birds, which ordinarily do not nest here, is not large, though an accurate check has not been made. It is believed that a few ducks may be nesting, because in midsummer groups of blue-winged teal and mallards have been seen; wood ducks nest in the big trees on shore and bring their grown young to feed in the great lotus beds which cover acres of every quiet bay and inlet with pale yellow moon lilies.

King rails nest in the grassy marsh. So do the short-billed marsh wrens and red-wings. In the willows yellow-breasted chats, Bell's vireos, and yellow-throats nest, and yellow warblers, cardinals, cat-birds and indigo buntings live in the drier parts of the marsh. There is a colony of great blue herons in the inaccessible forest south of the marsh; black-crowned night herons and green herons nest somewhere in the region.

In spring the marsh is vibrant with sounds. Long before dawn the tootling and purring of barred owls begins and the dawn itself is opened with the laughter of the soras and the grunting of Virginia rails. The marsh wrens set up a

wild chattering in the cattails and the gurgling of the red-wings almost drowns out the vocalizing of the chats and vireos. From a quiet pool may fly a group of big-eyed semipalmated plovers, a solitary sandpiper, or some pectorals. The yellow-legs may fly with a musical yodeling out of the morning sky and drop down to a shore to feed. There may be a bittern, a Wilson's snipe, or a woodcock on a grassy wet place, and up the channel come the terns — rakish-crested Caspians with blood-red beaks, slim-winged common and Forster's terns, tiny least terns, the methodical dipping flight of black terns. A flock of golden plovers, always a rare and exciting sight in the Lincoln Country today, may float upward, whistling against a patchy blue and white April sky, then continue on their way to the north country. Upland plovers nest in the bluegrass of the roadsides.

In midsummer, dozens of American egrets, snowy egrets, and the immature little blue herons come to fish in the lake, with many great blues and green herons. Eagles and ospreys sometimes soar over the lake, and occasionally a migrating duck hawk swoops low in a

In the spring the marsh is vibrant with sounds—the laughter of soras and grunting of Virginia rails—the musical yodeling of yellow-legs dropping down to feed. Photograph by the author.



The marsh wrens set up a wild chattering in the cattails. Photograph of long-billed marsh wren by Hal H. Harrison.

power dive to scare the daylight out of the scaups. To the pine plantations, planted to protect the soil, and now 20 feet tall, there sometimes come long-eared owls, always rare in this region, but now more common since the pines in which they prefer to roost are now on the prairie landscape. Short-eared owls occasionally cruise over the nearby grasslands and marshes in search of mice.

In the years since the lake was created, we have seen a number of bird rarities in central Illinois. Among the exciting finds have been the red-throated loon, the Holboell's grebe, two barnacle geese in a flock of Canadas, the Hutchin's goose, European teal, Barrow's golden-eye, European widgeon, old squaw duck, black-bellied plover, western willet, red-backed sandpiper, stilt sandpiper, sanderling, Franklin's gull, least tern, and a blue grosbeak.

It is exciting to be present while nature brings changes to a region. We who have watched for 15 years, and have proudly taken visiting naturalists to see birds and our birding country, are still the most deeply impressed by what a lake has done for a section of our dusty, weed-grown prairie in the Lincoln Country.



TALONS IN THE NIGHT

[This is a concluding article in which the author tells of almost a quarter-century of research with owls—nature's silent-winged dwellers in the darkness.]

By Lewis Wayne Walker

FOR aggressiveness, the diminutive screech owls that nested in a hollow oak would be hard to beat, but they did not show their daring until the young had almost attained flying size. These eight-inch birds lived in a cavity originally excavated by woodpeckers, later enlarged by termites, and occupied the previous season by a pair of sparrow hawks. An early May visit disclosed five pure white and almost round eggs—typically owlsh in both color and shape. With swaying body and snapping beak the disturbed parent vainly tried to see past the flashlight beam and when I reached into the opening she threw herself backwards and fastened her sharp, quarter-inch talons in my hand. When I left a few moments later, she may have felt very proud of having driven such a large intruder from her doorway.

A large plywood refrigerator box, supported on four, ten-foot long 2x4's became my blind. By dusk it was in position, with three silvered flash reflectors and several cameras facing the black cavity entrance. Frogs in a nearby stream started their nightly chorus and from a



"The screech owl stared at the blind . . . her expression one of wide-eyed curiosity . . . then three flash bulbs illumined

ated though the o

distant hillside I heard the plaintive cry of a poor-will. These noises were distinctive, easily separated one from the other, but suddenly from the branches above I detected the faintest whisper of a quavering whistle, immediately answered by a similar sound from the interior of the hollow. I watched the opening intently, but the stealthy emergence of the day-shift parent almost caught me napping. The black hole gradually disappeared as she forced her head out of the opening and stared at the blind, the noisy construction of which had caused her to hide.

Her expression was one of wide-eyed curiosity and then three flash bulbs gave a blinding illumination to the scene. When once again I could see in the darkness I realized that the doorway was still blocked. It was almost as though a piece of bark had grown across the opening, an illusion I soon deciphered as a trick of transformation. Her eyes were closed to mere slits, ears raised to jagged points and the lines of her face, formerly round and soft, switched to a vertical pattern which matched the up-and-down shadows of the tree. She virtually became a part of the bark

All photographs by the author except where noted



ated the scene. . . . It was almost as though a piece of bark had grown across the opening . . . her eyes closed to slits,

her ears raised to jagged points . . . she became a part of the tree—a perfect example of protective form and coloration.”

itself—a perfect example of protective form and coloration.

These screech owls were quick to learn that the small electric light, kept burning throughout these studies to make my vision comparable to that of the night birds, was an aid to their hunting. Moths and bugs drawn by the dim but far-reaching rays fluttered against the reflector, offering the owls a concentrated supply of food. Within a week the light became an owl-automat, with one or both birds waiting in the shadows for a tasty morsel to appear.

During the weeks that the fledglings remained within the oak, the parents were content to show displeasure of my presence with snapping mandibles and subdued barks, but when one of the more venturesome young blocked the doorway their vocal threats changed to physical attacks. My owl blind then be-

came my only safe retreat. An adult stood constant guard about 20 feet above the nest hole, diving down and raking my hand with its sharp talons each time I reached outside to replace expended bulbs. These attacks, executed in full flight, were so fast that the method of inflicting the wounds remained a mystery until a portable strobolite was used to stop the action.

That night may have been fun for Kirkpatrick, who operated the "strobe"—but my hatless head took a beating I shall never forget. The sight of the owlets reposing in a marine helmet drove the adults to reckless action consisting of about 40 power-dives from a perch in the sycamore above. Soft

The sight of the young screech owls in the author's hat drove the adult owls to reckless action. Filmed in rapid sequence, one of them (left) power dives from a perch in a sycamore.



feathers which endow the family with noiseless flight failed to give a telltale swish and I would feel the pain and see the 1/5000-of-a-second flash without any previous warning. Subsequent film development showed a slow reaction on my part. Facial wincing from the sharp talons did not register until the bird had progressed at least three feet on its way back to the perch to strike again.

Arizona's sparrow-sized elf owls were unafraid, much as the screech owls were, but in an entirely different way. These midgets that nest in giant saguaro cacti seemed to realize the futility of attacking me and placed themselves at my mercy while they continued with household duties.

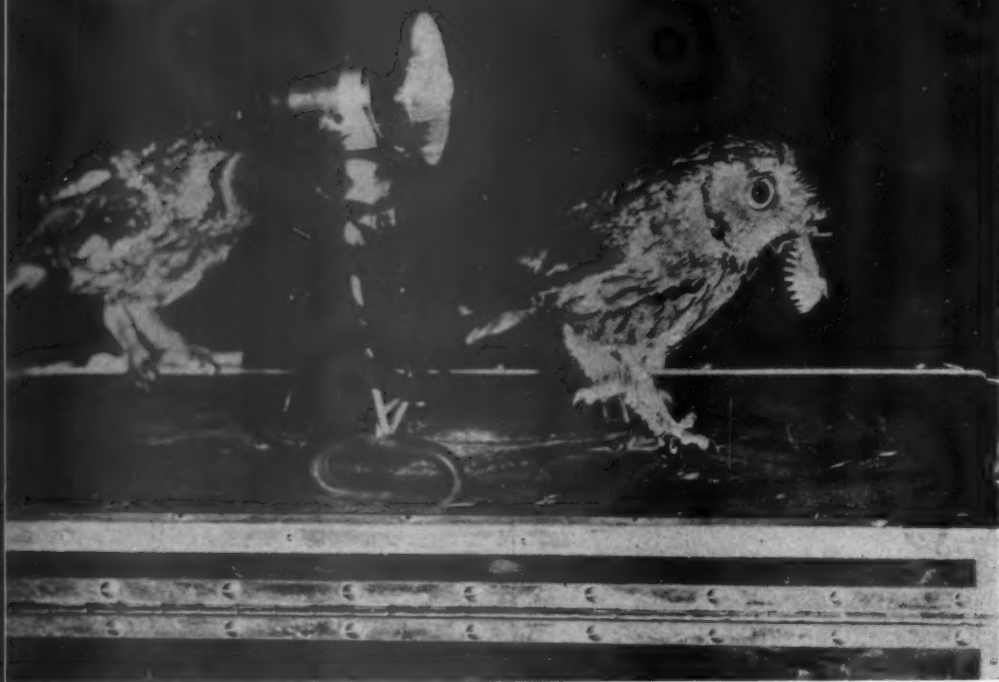
more tree. The avenging parent (middle) reaches its feet toward the author who (right) wincing from the blow a split-second after the bird's sharp talons have raked his head.

Photographs by G. E. Kirkpatrick.

The original plans to photograph the elf's nest, which was situated in a weathered woodpecker hole, demanded a completely enclosed blind set upon a tripod of timbers. But dusk caught it still under construction. I continued to saw and hammer until the birds showed me that further construction would be unnecessary. One parent that had spent the broiling day within the nest cavity was discovered sitting in the opening, watching me work, and a moment later the other adult perched on the rounded top of the cactus which harbored the nest. The bulky photographic gear, so necessary to the making of color photographs at night, was placed upon the raised platform with a camp seat behind it. Within a few hours the birds carried on as though the curious human three feet away was a part of the landscape.

This was a pleasant surprise. For the





The screech owls (above) soon learned that the author's small electric light aided their hunting and they came to feed on moths and other night-flying insects drawn to its rays. A parent screech owl (below) stood constant guard near the nest hole.



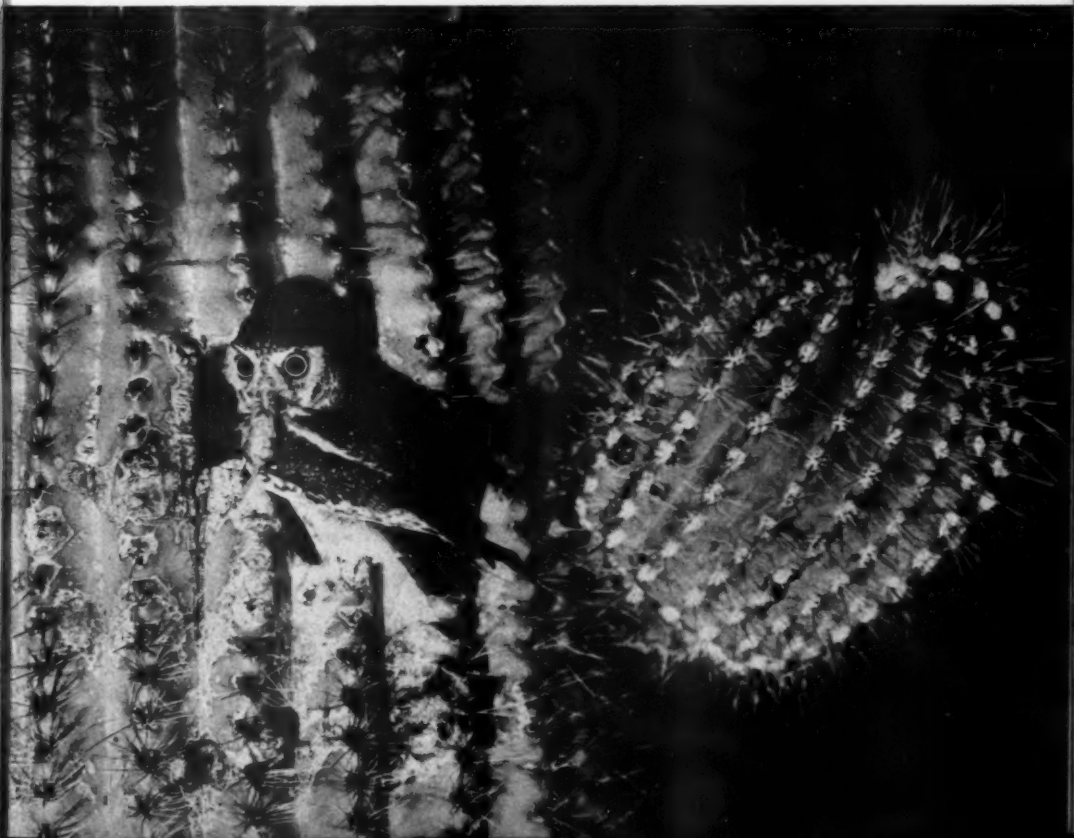
first time in years of owl observations I was able to relax from a tiring statue-like pose—a necessary and monotonous part of normal bird photography. Occasionally the food delivery trips of both parents would coincide. While one was within the nest feeding the young, the other would either hover in front of the opening or sit on a reflector oblivious to me as it waited for its mate to emerge. A few times during the following week I felt the brush of their wings when I moved and blocked their normal lanes of travel.

Observations from my platform showed that the birds were not naturally trusting of other creatures and that they feared meat-eating animals. Once when a coyote passed within a few feet of the windward side of the blind they hovered above him and “barked” until he trotted

out of the neighborhood. Imprints on the desert soil often disclosed the tracks of foxes or bobcats. Whenever I found these, recollections of the evening’s vigil would bring remembrances of the same angry owl barks at the spots where the mammal spoor was discovered. Strangely, deer and wild burros were allowed to wander unchallenged and the owls no doubt placed me in the same harmless category.

The prey of these elf owls consisted of almost every type of insect to be found in the region, as well as scorpions, centipedes and other arachnids. Their rapid delivery of these foods to the young showed that there must have been a bountiful supply in the area, but several evenings passed before I learned that they, like the screech owls, had an automat. Theirs, however, was natural,

Arizona’s sparrow-sized elf owls were unafraid, but offered only passive resistance to the author. Adult (below) with scorpion brought in to feed young.





The elf owl (above) has its own "owl-automat." It beats agave blooms with its wings and when wasps and beetles come out of the flowers, the tiny desert owl picks them off and carries them to its young (below).



for the elf owls relied on the spectacular blooms of agaves and not on an electrical gadget imported from far-off civilization.

These agave flowers, noted for their brilliant orange crown, tower into the air eight or ten feet high and their nectar-rich odor is one of the chief delights of the desert. During the daytime, hummingbirds, orioles and butterflies probe them, and at dusk wasps, beetles and moths come to them. In fact, "bugs" of so many types flock to the sweet pockets of liquid that the noise of their wings creates a steady hum that can be heard for yards.

One evening the roving beam of my flashlight followed an adult owl on her flight from the nest as she headed for a nearby agave. Arriving at the bloom she swung up on its under side and while hanging in this inverted position beat the plant above with outstretched wings. Wasps and beetles came out by the score, circled and alighted again, but before they could hide in the petals the owl picked off a few as food for her fledglings.

The flowering season of these plants (May and June) might well be the factor which retards the nesting of the elfs until a much later date than that usually chosen by other owls. After my chance discovery of these "automats" I watched them closely and found that over 90 per cent of the owl's insect prey was gathered from flower petals.

The young grew rapidly, almost doubling their size during my week's stay, but the desert in June can be an ordeal. Each pleasant night was followed by scorching days that ran the temperature to almost 120 degrees. The prospector's yarn of the coyote-jackrabbit chase wherein the heat forced them both to walk, came to mind as I spent my days following the shadow of a great rock. Most of the desert animals were stilled by these noonday temperatures. Quail and cactus wrens retreated into deep, cool cracks which ran into massive boulders and thus avoided the noonday

sun. Turkey buzzards and some of the hawks set their wings and rose on the thermals until they reached higher, cooler air.

Through the ages the desert has developed specialists adept in the art of avoiding the rigors of heat in a barren territory and I was rapidly learning that elf owls were among the most highly specialized of all. These tiny birds dwelling in the heart of a living green plant, entered it through a hole on the shaded north side. Inside they were surrounded and cooled by flowing saps, yet insulated by a resinous wall that lined the hole and excluded moisture. These owl mid-gets are linked to the saguaro, largest of cacti, and have never been reported as

permanent residents in regions where the giant green plants fail to grow.

From small to large, or from sublime to ridiculous, describes the transition of studies from these diminutive elf owls of the desert to the big horned owls. A pair of these birds had chosen a nest in the heart of one of the few remaining colonies of great blue herons still existing in southern California. On an early spring visit I could almost feel the tension that gripped the herons. The long-legged birds, usually ready and willing to squawk at a human before taking flight, craned their necks and stared at one lone nest among their own where two half-grown horned owls peered over its rim.

At dusk the adult horned owls hooted and the four young answered with a penetrating hiss.





A parent horned owl watches a young one bolt a whole rat. By dawn the four youngsters also had eaten a cottontail, a gopher and a ground squirrel.

The black pupils of the young owls, contracted by the glare, were pin points in a disk of yellow as they followed my every motion where I circled the tree on the ground below. Horned owls are unprotected, but I had no desire to harm this nocturnal family. Neither did I want them to cause a mass exodus of the picturesque herons. I decided to experiment—to displace the owls and re-establish them in another area.

Many hours later and after miles of tramping and tree-climbing I found another nest of horned owls, also containing twin young. All I had to do was climb the tree and place the transported fledglings with their foster relations. From ground level my plans looked easy. After a score of trips I realized that I was not only frustrated, but thoroughly exhausted. Each time I reached the nest the young ones would flutter off and rapidly descend to the ground—about 60 feet below. Those which I laboriously lifted would wait for my next ascent and then they in turn would drop off and down. Their endurance and perversity was very trying. Finally, in desperation, I pushed the nesting platform out of the treetop and rearranged it in a crotch within easy reach of the ground.

The adult horned owls captured at least 13 cottontail rabbits along with seven or eight small rodents for their young-



The author's studies of the food habits of these horned owls showed this pair to be highly useful to mankind. Of the 40 mammals brought to the young, 21 were gophers.



sters (below). No birds were brought in, although many pheasants and quail lived on the surrounding hillsides.



During my daylight activity the parents remained in seclusion, but at dusk they started their mournful, "Who—who who—whoo-o-o," the best known of all owl calls. All four young answered with a penetrating hiss that grew monotonous as it continued throughout the night. I could hear the adults talking near the tree from which I had removed the nest, and at least once the ground below them was examined by one of the pair.

Ten o'clock passed. The only activity was the rasping hiss of hunger repeated every 10 seconds, combined with the incessant buzz of hungry mosquitoes. Would that the tables had been reversed—well-fed owls, mosquitoes starved to death! Then gradually from the blackness I became aware of a faint sound like talons on dry bark. The young, previously occupied with aimless staring, focused their attention toward the spot as a gust of wind told me that an owl had passed on its way to the nest. This noiseless flight never ceased to be a wonder to me. The bird flew within two feet of my head but despite a wingspread in excess of four feet, it was air turbulence alone which signaled the bird's passage.

By dawn the next day the four young

had devoured a cottontail, a gopher and a ground squirrel. This last mammal, strictly diurnal, was the only one of its species brought in during the next three weeks.

Data gathered concerning the foods of these horned owls showed this pair to be decidedly worthy of protection. Of the 40-odd mammal carcasses brought to the young, 21 were gophers. However, as the fledglings swallow small rodents without preliminary tearing, I believe that my count of this species was less than the actual number delivered. The remains of at least 13 cottontail rabbits were also tabulated along with seven or eight small rodents

so badly mangled that identification of them was impossible.

The absence of bird remains, either in the flesh or in the nest refuse, was surprising—especially when the calls of quail and the crowing of pheasants could be heard each dusk and dawn from the surrounding hillsides. From this study and visits to other horned owl nests, I can't help but feel that much of the "fact" literature which pictures horned owls as villainous killers of game, fitting subjects for bounties, is not very well-grounded. This southern California pair was certainly an asset to agricultural interests by destroying destructive rabbits and they were making

★ N A T U R E I N T H E

Bird Species Wins Battle to Survive

Pileated Woodpecker Nearly Extinct Once,
Now an Ally in Forest Conservation

Special to The New York Times

ITHACA, N. Y., March 26—The pileated woodpecker, which neared extinction twenty-five years ago, has not only won its struggle for survival but has become an ally in the conservation of American woodlands, a Cornell University ornithologist reported this week.

By preying on the black carpenter ant, the bird is helping check one of the most serious threats to white pine forests, Dr. I. S. Y. Hoyt declared at Cornell's Farm and Home Week.

Although a human cannot detect the ants by looking at the tree, the woodpecker unerringly tunnels through the bark to find them, Dr. Hoyt said. The bird has never been known to dig into a tree that did not harbor a large ant colony, he added.

The woodpecker's work often leaves large gashes or holes in the trees, the Cornell scientist admitted, but such trees have already been ruined for lumber use by the ants before the birds began their attack.

"The natural inclination is to feel that these woodpeckers should be controlled to prevent such damage to our forest trees," Dr. Hoyt said. "In reality, however, the woodpeckers act as conservationists by cleaning out these ants from one tree at

a time and thus preventing the spread of the ant colony to another tree. Is it not better to lose one or two trees to the woodpeckers than a whole forest to the ants?"

Dr. Hoyt, a member of the Department of Ornithology at Cornell, based his report on a ten-year study of the woodpecker, which he has just completed. He has recorded the entire life history of the bird in motion pictures and has what is believed to be the only pileated woodpecker specimen in captivity.

The bird became extremely rare in the mid-Twenties. Naturalists are inclined to believe that the woodpecker had difficulty in adjusting to the advance of civilization and the accompanying inroads on the big forests in which it made its home. Somehow, however, it became acclimated and made rapid gains until today it is found in most of the woodlands of the eastern United States.

The pileated woodpecker, a black bird with a red crest and white markings on its wings and the sides of its neck, is almost the size of the crow and is the largest of the American woodpecker family. It is found only in North America.

Reprinted from Hartford Courant, July 2, 1949

Rare Wood Ibis Found In South Windsor Swamp

Several members of the Hartford Bird Study Club discovered a wood ibis, a member of the stork

the hillsides safe for ground-nesting birds by waging a constant battle on egg-stealing rodents.

Several years have passed since I made these studies. In the interim, southern California's human population has increased enormously and there has been a corresponding decrease in desirable types of wildlife. The horned owls are gone. As a result of their absence, the burrows of ground squirrels and gophers dot the terrain formerly patrolled by the nocturnal predators. Some of the rodent holes have enlarged, through erosion, into deep gullies.

A bare quarter of a mile away signs tacked on fence posts warn that grain,

poisoned for rodents, has been scattered in the area. Midway between two of these placards the mummified carcass of a predatory bird hangs on a strand of wire—ironic testimony to the accuracy of a telescopic sight.

Public health officials warn that tularemia (deadly to man) is carried by rabbits in areas that they overpopulate; that bubonic plague has been discovered in the county, transmitted by the fleas that infest rats and mice. Some of the news dispatches mention the unprecedented increase of rodents and try to blame it on a mysterious cycle, but never on the foolish slaughter of valuable birds of prey.

NEWS



family, in South Windsor, it was reported Friday.

The members were making a routine check in swamplands along the river when they came upon the bird. This is the first time a species has been found in Connecticut, they said, according to existing records. The huge bird, nearly three feet tall, was seen with an American egret, another large bird.

The study group included Mr. and Mrs. Leonard French, James and John Woodson and Thomas Shires of West Hartford and Mrs. Robert Risley of South Windsor.

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The Press Helps in Conservation

The following news release by the National Audubon Society was used as an Associated Press science feature item late in June, during the most severe drouth in the Middle Atlantic States in 40 years. Striking so early in the nesting season, its effects on wildlife were far more serious than a longer drouth would prove in July and August.

In the Society's release, the value of garden bird baths was suggested for the benefit of nesting birds. In view of the unprecedented number of letters and telephone calls we received this year from people who had found injured adult birds or orphaned or deserted fledglings, asking for information on how to feed them, we included in the news story a tested recipe, worked out by Dr. Hoyt of Cornell

University, which may be helpful to *Audubon Magazine* readers confronted by similar feeding problems.

DROUTH CREATING HAZARDS FOR WILDLIFE

Dietary Suggestions for Orphan Birds Offered by Audubon Society

New York: Prolonged drouth in many parts of the country is causing difficulty for great numbers of birds and other wild animals with young, in areas where surface water has already disappeared, the National Audubon Society pointed out today. Adult birds and other animals are forced to travel longer distances for water, exposing their eggs or young to increased natural hazards in their absence, and reducing the frequency of their feeding trips. Upland game birds, such as pheasants, grouse and quail, are obliged to leave protective cover to reach streams and ponds, accompanied by their chicks, which are not yet able to fly.

Even wild ducks are threatened where the drying up of marshes has evicted broods from their original ponds to find other water, at heavy risk to flightless ducklings from motor cars and other dangers. Until late July, when most young birds of the year will be able to take care of themselves, the Society points out, drouth perils can be reduced for nesting insectivorous birds by keeping backyard bird baths filled with clean water.

Reporting an exceptional number of calls and letters this year asking information on what to feed fledgling birds whose nests have been

Continued on Page 270

Our Beautiful
Western Birds



WILLET

A willet on the mud flat is just a big plain sandpiper; there is nothing very distinctive about it. But when it opens its wings to fly it flashes a pattern as eye-catching as that of an underwing moth that has been flushed from its hiding place on a tree trunk. The willets that nest near western prairie lakes flock to the coasts of Texas and California in winter, where they consort along the outer beaches with the big brown marbled godwits (opposite). There are willets along the Atlantic coast too, but seemingly not as many.



Painted by
Roger Tory
Peterson

MARBLED GODWIT

It would seem that when the shorebirds were distributed the East received mostly small fry while the West got the lion's share of the big ones. I count myself lucky to see more than one or two marbled godwits in a season along the Atlantic coast, but on the Pacific side, particularly in California, flocks of hundreds are commonplace. Big as a small duck, the marbled godwit can be told by its barred brown color and its very long straight or slightly upturned bill. Marbled godwits breed inland on the prairies, then come to the coast when nesting is over.



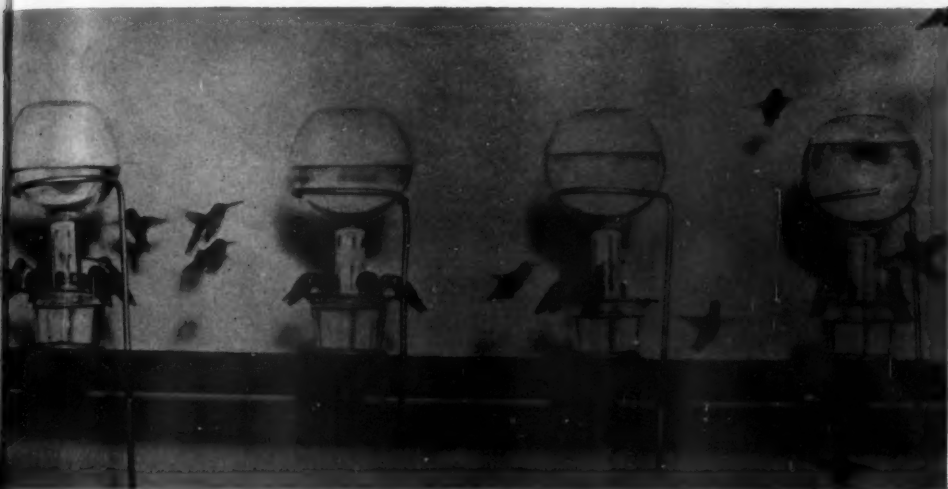
A Californian sets a table in his sanctuary where 200 hummingbirds feed at one sitting.

The philanthropist, B. F. Tucker of Long Beach, California, chats with Margery J. Milne near a bridge which spans the stream between the parking area and the fireproof sanctuary building. The hummingbird bar extends the full length of the building in the background, where it is shaded most of the day, and is supported by ant-proof pipes. Photograph by Lorus J. Milne.



Twenty-one hummingbirds at four of the two-dozen automatic feeders maintained by the California Audubon Society at the Dorothy May Tucker Hummingbird Sanctuary near Orange, California. This bar will ac-

commodate 192 sippers at one time. Toward sunset and during migrations there is fluttering room only—and that is vigorously contested. Photograph by B. F. Tucker.



By Lorus J. and Margery J. Milne

ABOUT 40 miles east of Long Beach, California, near the head of a wooded canyon, is a unique "hummingbird bar" where 192 midget aerial acrobats can drink simultaneously. Feeders extend along one side of a 24-foot porch, and human visitors exclaim with delight or amazement as they sit comfortably in armchairs and watch the darting hummers through the screen. When five species of California hummingbirds mass in the spring for their migration flights, the hummers are at a peak population which will not be duplicated until fall.

Hummingbirds are uniquely American, and some 500 species are known from North, Central and South America. Of these smallest known birds, 16 enter the United States, although all but one are western. The one—the familiar ruby-throated hummingbird—lives east of the Mississippi River. The California sanctuary shelters all six hum-

mingbirds found in that state, and three of them nest in or near the preserve. In spring Allen's hummingbird arrives after the calliope and the rufous to swell the crowded rails—where places are already in use by Costa's, Anna's, and the black-chinned hummingbirds. These winged motes whirl and sip from automatic feeders maintained by the California Audubon Society at the Dorothy May Tucker Hummingbird Sanctuary.* One can never forget the hundreds of hovering birds, the multiplicity of dazzling metallic colors of males glinting in the sunshine, and the twittering contests for places at the fountain.

The sanctuary property is the gift of a retired banker and philanthropist, Mr. B. F. Tucker of Long Beach, who established it as a memorial to his wife. Previously it was a Tucker mountain re-

* See *Bird-Lore*, July-August 1936, pp. 264-265, "Feeding California Hummingbirds," by B. F. Tucker and Leaflet No. 14, California Audubon Society, Inc., March, 1940, "The Dorothy May Tucker Memorial Bird Sanctuary."



treat, called "Oakwood" because of the large number of big live oaks on the nine acres which stretch down from the boundary of the Cleveland National Forest to and across a little stream and up the opposite slope to the canyon rim. Each spring the sanctuary is filled with wildflowers, but with the coming of the dry California summer, the stream disappears, the blossoms vanish and most of the birds leave. The Tuckers built a home there in 1926 and the following spring Mr. Tucker noticed a hummingbird nesting in a cactus, and wondered where it could find nectar with the flowers all gone. He attached three small test-tubes to nearby trees with wires three feet long. Then he tied bright ribbons to the tubes and filled them with diluted honey. The conservative hummingbird, though a fond parent and in dire need of food, took nearly two weeks to explore this new plant before she decided to accept its bounty! Thereafter she was a regular customer. So were her babies when they reached the flying age.

Each year these same birds returned and raised families on free rations. Gradually the Tuckers learned more about the needs of their tiny-winged boarders. The honey attracted wild bees as well as domestic ones from hives far away. When bees swarmed over the test-tubes to get at the diluted honey, the birds refused to eat. To overcome this difficulty the Tuckers remodeled the feeding tubes—providing, instead of the open test-tubes—small glasses with metal caps that had perforated holes large enough for the slender bill of the bird, yet too small for the heads of bees.

The demand for honey grew, and

hummingbirds soon came daily by the dozen. Before long the Tuckers discovered that sugar-water (half sugar, half water, boiled for about five minutes) was as attractive as honey. But the birds came so rapidly and were so thirsty, that they drained the feeders every day. Since the bird bar was at a week-end cabin, and daily trips to refill the glasses were not possible, Mr. Tucker changed the design of the feeders again. This time he borrowed a feature from automatic drinking fountains on chicken farms by up-ending quart flasks of sugar-water over the covered dishes. Soon he had a row of 25 such feeders mounted on an ant-proofed 2x4 suspended from the eaves of the house, parallel to the front screened porch. Each feeder has eight holes about an eighth of an inch in diameter in a circle over the liquid and near the edge. Since eight hummingbirds can feed simultaneously at each feeder, the whole bar accommodates nearly 200 sippers at once.

Mr. Tucker is a considerate man. It worried him to see hummingbirds expend tremendous energy, hovering on whirring wings while they drank his sugar-water. So up went a wire rail around the glasses as a resting perch. The birds soon took advantage of the wire as a place to cling, yet each invariably took to the air to drink, although the holes were within easy reach from sitting position. Mr. Tucker raised the rails and moved them closer. Still the birds hovered while they sipped. Finally the rails were placed so high that they pressed against the hummers' bright breasts—but this time the birds got the idea! Now you can tell the difference between newcomers and old-timers—the latter rest and thrust their bills deep into the containers, while novices buzz around and drink on the wing.

The sanctuary, in Orange County, 16 miles from the city of Orange, is not the normal route for California hummingbirds. It is more than 40 miles from the coast, near the head of Modjeska Can-

Room for one more! Hummingbirds cling to the rail and sip sugar-water through one-eighth-inch holes in a bee-proof metal cover. The suspended quart flask replenishes the feeder automatically, but at the present rate of use, the 24 quarts must be refilled every few days. Photograph by B. F. Tucker.

yon* (named for the famous actress, Madame Modjeska, who built a home there). Yet twice a year—in April and October—all the hummingbirds in the world seem concentrated in the air and trees near the feeders. Now many of them remain near the Tucker Sanctuary during the spring and summer, keeping company with Anna's hummer which stays there all year through. Every day in the year hummingbirds drink from the feeding stations.

Ordinarily a hummer seeks a drink at 20-minute intervals. Between visits to the bar, these aerial artists can be seen resting for minutes at a time, with black feet clasped around some small twig. The birds will not settle just anywhere. Each has a few favorite perches and will defend the immediate vicinity against all comers. This combative spirit is much in evidence at the feeders, where a sipper will rise up in wrath, twittering and darting at newcomers. In these battles the hum of wings is punctuated by the dry brush of stiff feathers clashing briefly before one bird gives way to another. Only toward dusk, when the urgency of getting a crop full of sugar-water before darkness put an end to feeding for the day, and during migration when the birds are unbelievably numerous, do the sipping stations fill to capacity. Then the long slim bills probe into the liquid below, and the split tongues—more slender still—flick into the sweet depths.

The Tucker Bird Sanctuary was dedicated in May, 1939—prior to a double tragedy. Mrs. Tucker, to whom the project meant so much, passed away in August. The following July, fire destroyed the cabin and so bewildered the hummingbirds by the strange crackling brilliance in the night, that many of them flew to their death in the flames. The following morning, Mr. Tucker set up new feeders for the survivors. In 1941 he deeded the property to the California

Audubon Society, Inc., and a new fire-proof building rose promptly on the site of the original cabin. The porch-feeding station is like the old one, and the birds that attend probably include descendants of the pre-fire population. In a spacious museum room books and mounted specimens help visitors identify the various species.

Three kinds of hummingbirds nest around the sanctuary building—the Anna, Costa and black-chinned. The latter two arrive in April, the females a day earlier than the males. By the time the males arrive, the females have chosen sites for nests, and may even have begun to accumulate bits of plant material and cobwebs on some tree branch. Then the males turn on the charm. Each flies a fancy figure before a hen bird that has caught his eye. If she pays no attention to the acrobatics, he may leave and try his luck elsewhere. But if the antics arouse her interest, she begins to follow his whirring flight by turning her head. Soon she darts into the air to meet him, and before long the two settle side by side on a twig. Aerial embraces alternate with amorous billings and twitterings. Anna's hummingbirds even mate on the wing. On the following day the honeymoon is over. The hen bird usually drives away her mate, and finishes her nest with viscous saliva for glue and bits of lichen for decoration or camouflage on the outside. Her home-building may be completed in one furiously active day, or the unfinished structure may be put to use and the final touches added during incubation.

Within two weeks after the two pease-sized eggs are laid in the trim little nest, the shells break open and naked, short-beaked hummingbirds sprawl out. The female feeds them from her own crop with regurgitated nectar and insects, and alarms human observers by thrusting her beak so far down each young one's throat that she seems about to pin it to the nest! If marauding ants do not find the nest and destroy them, the youngsters

* Also called Santiago Canyon; local and state usage are at variance.

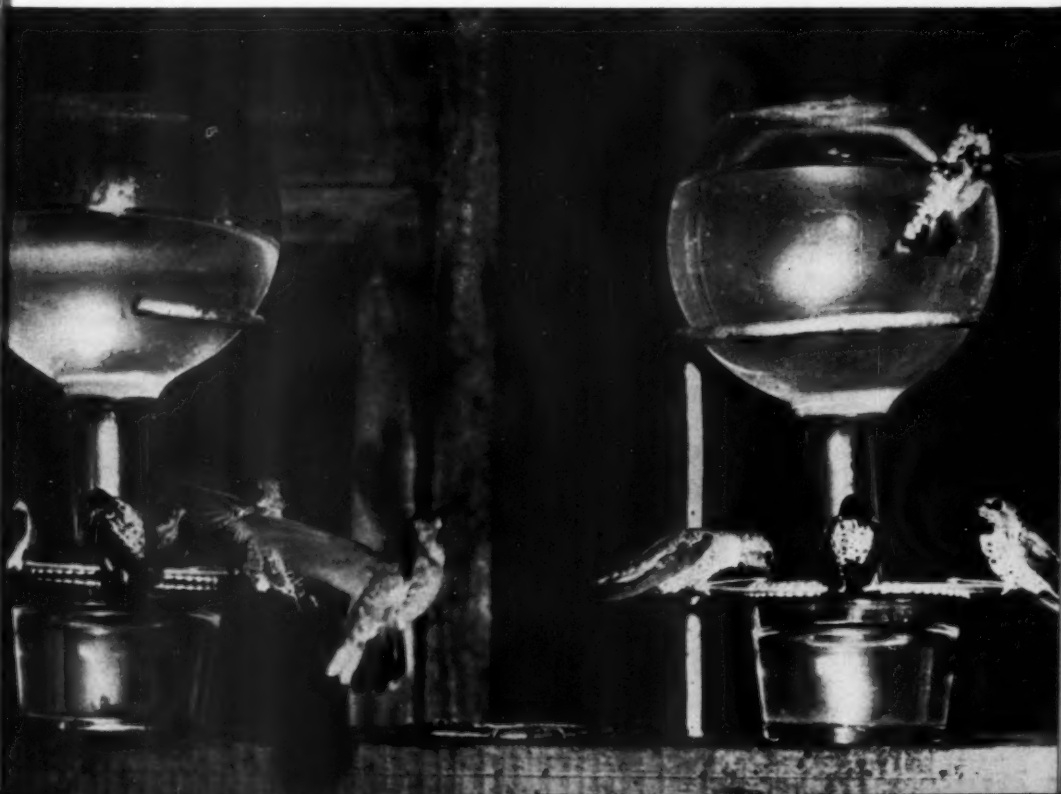
develop and after three weeks of life in their shallow cup, are ready to follow their mother to the feeding stations. For the next three to eight summers, if they survive, each will return to raise a family and swell the ranks at the bird bar.

During the war, when sugar was rationed, Mr. Tucker feared for the hummingbirds that had learned to depend on his sanctuary feeders. He knew that his own allotment of sugar and those of interested friends would not suffice, for each hummer requires a level teaspoonful (made into imitation nectar) daily. But the whole project was of such tremendous appeal to Californians

To have a hummingbird perch and drink through the holes in the bee-proof metal cover of the sugar-water container, with no bright ribbons or other suggestions that this is a "flower," proves that the habits of these birds can be modified. Mr. Tucker developed the automatic feeder as he built his reputation for free meals among California's hummingbirds. Now they come in great numbers every day in the year. Photograph by B. F. Tucker.

and out-of-state visitors, that the sponsoring society had no difficulty in obtaining special rations for the bird boarders!

A hummingbird's diet includes more than nectar or sugar-water. The lack of gnats around the sanctuary may be attributed to the activities of these birds, for most of them feed upon insects. Bird food-habits scientists have established that almost half of the Anna's animal food is small flies. Mr. Tucker has been much interested in supplementing the natural food supply of his hummingbird guests and has gone to considerable lengths to try out sugar solutions to which he has added proteins. So far the birds have shown no liking for the fortified food, but the experiment is continuing. The man who made hummingbirds sit down to drink, who lured them to an artificial flower and then took away the bright colors without the birds noticing their loss, may yet succeed in finding a formula that will provide all the pep a hummingbird needs, in a single balanced solution.



Starting a local Audubon Society may not be quite as easy as finding a weaver finch in your backyard. But it's not hard. Some folks even say it's fun.

If you live in a community that does not at present support an Audubon Society, why not start one?

Not enough people interested, did you say? We don't believe it! Here's why: 10 new Audubon Societies have been organized in Minnesota alone in the past two years, most of them in towns where even the organizers believed there were "very few" persons interested in nature and conservation.

When the word got around that an Audubon Society was being formed, members turned up from all walks of life and the moving spirits discovered that, unknown to them, some of their neighbors had been quietly pursuing nature hobbies for years.

A local Audubon Society is a sort of melting pot for people of all ages who love the outdoors. It is not possible to give a hard and fast definition of an Audubon Society because each one varies according to the desires of the persons who compose the membership. Although some place their emphasis primarily on birds, others display a lively interest in all branches of natural history. The distinguishing characteristic of most Audubon Societies is their community service objective—conservation of natural resources.

We are often asked, "How large does a town have to be to support an Audubon Society?" There is no size limit. Many active though small societies thrive in communities of just a few thousand population. However, nature enthusiasts in rural areas or small towns are urged to organize their societies on a county-wide basis, thus embracing a larger area from which to draw recruits.

If you are now ready to proceed, here is a formula for organization that has been used successfully many times:

1. SEND FOR INFORMATION

Write the Membership Department, National Audubon Society, 1000 Fifth Avenue, New York 28, N. Y., that you are interested in forming a local Audubon Society and would like the memorandum about the branch plan and a copy of its suggested constitution and bylaws.

2. INFORMAL GET-TOGETHER

After you have familiarized yourself with the Audubon branch plan, invite some people interested in nature to your home for an informal meeting to discuss the prospects of starting a club. Explain why you believe it is needed; discuss the activities in which it might engage. If it is the consensus of your informal meeting that an Audubon branch be organized, ask those present to be an organization committee. Select a chairman and a tentative name for your organization and make application to the National Audubon Society

for operation as a branch, stating the territory that you wish to encompass (single city, several small communities, entire county, etc.). The Society recommends that the territory be limited to an area small enough so that members are able to participate in the branch's activities without traveling a very great distance.

In advance of the gathering, inquire about the availability of a meeting place such as the public library, city museum, or school building. (In Minnesota, seven of the 12 Audubon organizations meet in public libraries, which usually are centrally-located and offer meeting rooms without charge.) Find out which dates are open at these meeting places during the ensuing month. Then, at your informal gathering, set the date, time, and

How to Organize An Audubon

place of the first meeting and ask all present to publicize the event in every way possible.

3. THE BIG MEETING

Don't expect the first meeting to "take care of itself." It never does. Here are a few suggestions for that first program:

Invite someone prominent in natural history studies (museum director, professor of zoology or conservation, etc.) in your state to address your first meeting. If possible, select someone who can illustrate his talk with movies or slides. Very often such people are so intensely interested in developing public interest in nature that they will travel a considerable distance, without fee, to give such an organization a good send-off. If it seems desirable to pay traveling expenses, perhaps a few interested persons will finance this item. If this scheme fails, invite a local nature fan who has taken good movies or slides of wildlife to be your star performer. Build your program around the major attraction.

The chairman of the meeting might start out by welcoming those present and explaining the reasons for the formation of the Society; he might also outline briefly some of the activities in which the Society can engage.

Next, five or ten minutes can be devoted to recent nature observations from anyone present. Have



Some local Audubon Societies are primarily interested in birds. Photograph by Charles C. Daly.

Audubon Society

By Ken Morrison

a few people primed to start it off by telling about birds, mammals, etc., recently seen in their yards or on field trips.

Practically everyone who attends an Audubon Society meeting is interested in attracting birds. Some societies devote a great deal of attention to this subject and it gets results in terms of sustained interest. If your first meeting is in the spring, ask someone with bird-house experience to bring a good simply-made model to the meeting and demonstrate how it is made, giving dimensions and other pertinent data—such as when houses should be erected, where they should be placed, how to thwart sparrows, cats, etc. Limit the presentation to about 10 minutes. If the meeting is in the fall or winter, the same can be done with a winter feeder.

The person who explains the branch plan should have a supply of membership folders and application forms that can be passed out to the audience as he starts speaking. These will be furnished by the National's membership department, upon request.

Here, then, is a type schedule:

CHAIRMAN'S INTRODUCTORY REMARKS.	5 min.
NATURAL HISTORY FIELD NOTES.	10 min.
DEMONSTRATION OF BIRD HOUSE OR WINTER FEEDER.	10 min.
EXPLANATION OF WORK OF NATIONAL AUDUBON	

SOCIETY AND DESCRIPTION OF BRANCH PLAN. 5 min.

A person who is familiar with the working of the National Audubon Society and the functioning of the branch plan should be delegated to cover that field.

SPEAKER OF THE EVENING.

60 min.

As a finale, the chairman should thank the speaker and then explain that membership in the Society is now open and that those who join that evening will be enrolled as charter members. He should designate someone as temporary treasurer, introduce him, and ask that he sit at a table near the exit so that those desiring to be charter members can pay their dues as they leave the meeting hall. The temporary treasurer should be selected in advance of the meeting so that he can have necessary materials on hand—membership blanks, receipts, change, etc.

Preferably, the meeting should last about an hour and a half. It should have enough variety and appeal so that those present will want to come again and will conclude that they ought to be a part of an organization that starts off with so much promise.

Before closing the meeting, the chairman should invite all present, and their friends, to be at the next meeting—the date, time, and place of which should be announced. It is usually desirable to adopt a constitution and bylaws and conduct an election of officers and directors at the second general meeting.

4. THE PIED PIPER

In order to get a turnout for the "Big Meeting" it is important to have newspaper and, if possible, radio publicity to supplement postal card notices, telephone calls and other more usual means of stimulating attendance. So you've got to be a piper piper yourself or get someone else to be one. It is not a difficult job. Remember this:

Effective newspaper publicity is the best way to get a good audience for your first meeting. You don't have to be a journalism school graduate to secure publicity. Visit the editor of your local newspaper, tell him what the Audubon Society is, that you and others propose to organize one and want his paper's help. You'll get it. Give him full information (preferably a written statement) about the first meeting. Stress that everyone interested in the out-of-doors is invited to attend, that it is free and open to the public.

The St. Paul Audubon Society enrolls new members at almost every meeting because each of its newspaper notices contains a statement that the public is invited. Visitors come, see, and sign up.

Newspaper space will help bring a crowd for your first meeting but it is just one "leg" of the publicity table.

See the public services director of your radio station. Give him a written statement about your first meeting; ask if he will put it on the air at intervals as a "courtesy spot announcement." Radio stations are licensed in the public interest and usually are glad to boost community enterprises if asked to do so.

Personal contact should always supplement other publicity devices. Get a telephone committee working to build an audience for your first meeting. Posters and postcard invitations to prospects are effective. This is the "age of publicity" and Audubon Societies might as well take advantage of the fact. Since they are community-wide organizations and not small cliques, it is important to make use of all the media of publicity to reach the general public.

5. THE BRANCH PLAN

The Audubon Society has evolved what a California member has described as "an extremely generous plan to encourage the development of local Audubon Societies."

Briefly, the branch plan is a cooperative set-up whereby an individual can become a member of both a local Audubon Society and the National Audubon Society by means of one annual dues payment of \$5.00 or more. The full membership fee is forwarded to Audubon House in New York. Two dollars is credited to *Audubon Magazine* to help pay the cost of sending the magazine to the branch member. The remainder of the fee (\$3.00 of a \$5.00 membership, \$8.00 of a \$10.00 membership, etc.) is divided evenly, 50 per cent being retained



Other groups, like the Bedford (New York) Audubon Society (above) add variety to their winter field trips by banding and photographing hibernating bats in an old mine. Photograph by Arthur C. Weeks.

at Audubon headquarters to support the conservation program of the National Audubon Society, and 50 per cent being returned to the local branch to support its activities. If the branch feels that the \$1.50 rebate on a \$5 membership is not sufficient to support its local program, it can encourage members who are able to do so to take out \$10 or \$25 memberships, thus returning \$4 and \$11.50, respectively, to the branch treasury. The Minneapolis Bird Club is following this course with surprising results.

It should also be remembered that the National Audubon Society will bear the cost of large scale solicitation of membership prospects, when such lists are furnished by the branch's membership committee. Fees from the new members thus gained will add considerably to the local treasury, though some societies carry on various money-raising projects in order to finance certain specific projects, such as scholarships to the Audubon Nature Camps.

The local Audubon branch is not asked to pay any sort of club fee to the National Audubon Society and is an independent organization that determines its own policies and procedures. It receives the benefit of advice and counsel from the national organization. Extension of the branch plan will strengthen the whole Audubon movement and will result in better development of local and national conservation programs.



Audubon Screen Tours, bringing outstanding nature photographers and lecturers to more than 100 cities each winter, are excellent projects for the newly-formed Audubon Society. Alexander Sprunt, Jr., lecturing in New York City, photographed by Gene Heil.

6. WHAT SHALL WE DO?

After your Audubon Society has decided where, when, and how often it shall meet (most societies meet in the evening once a month except during June, July and August), has elected officers and has appointed the committees provided for in the branch constitution (Membership, Program, Conservation, Education, Publicity, etc.) the question of what activities to undertake will arise.

A later article will deal with this subject in considerable detail so we'll merely outline a few ideas here:

FIELD TRIPS: A good schedule of week-end field trips—some half-day and others all-day—under competent guidance will prove very popular with those members who are not armchair naturalists. The field trip committee should develop a schedule of trips covering a period of several months. Complete information about each trip (destination, leader, meeting time and place) should be incorporated into the seasonal schedule, which can be mimeographed and sent to all members.

AUDUBON SCREEN TOURS: Sponsorship of Audubon Screen Tours, which bring the nation's outstanding nature photographers and lecturers to more than 100 cities five times each winter season, is an excellent project for a newly-formed Audubon Society. It gets the name of the organization before the general public and builds its prestige because of the high caliber of the lectures presented.

The Screen Tours bind together the local organization by giving it a top-notch project in which all members can participate, for there is much to do in the way of selling tickets, promotion, etc.

WILDLIFE SANCTUARIES: Some Audubon Societies have their own wildlife sanctuaries and a few even have clubhouses on their property. Tax delinquent land can, in some cases, be created a sanctuary, or sometimes persons who own property that would make a good sanctuary are willing to donate or lease it, at little or no cost to the local Audubon Society, for this purpose. The sanctuary

The Chattanooga (Tennessee) Audubon Society has its own wildlife sanctuary, dedicated to the donor's wife, on an old farm of 105 acres on Chickamauga Creek. Photograph by Herman Lamb.



should be adequately posted and members should be encouraged to undertake a coordinated and continuing study of the natural history of the area.

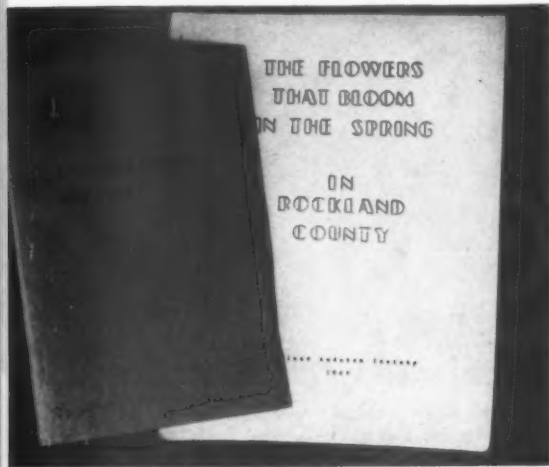
PUBLICATIONS: Many Societies undertake the publication of a journal of some sort. Very often

it is mimeographed but some groups raise enough funds to print a bulletin. Someone who has had writing or editing experience should be designated as editor and all members should be encouraged to contribute field notes, conservation news, personal items, etc., to the editor.

In some communities (such as West Nyack and Peekskill, N. Y.) the local newspaper has been persuaded to run a "nature column" which is compiled and edited by a member of the Audubon Society. Such a column is even more valuable than a club publication because it reaches the general public, thus expanding interest in both the out-of-doors and the Audubon Society.

JUNIOR EDUCATION: The Topeka Audubon Society and many others sponsor Audubon Junior Clubs in their local schools. Encouragement of interest in nature among youngsters is certainly one of the most worth-while projects that an Audubon Society can undertake. Full details can be obtained by writing the Junior Education Department at Audubon House.

There's a starter! There is almost no limit to the projects that Audubon Societies can tackle. Every community needs the constructive influence of an active branch of the National Audubon Society. If one does not exist in your town, why not do something about it now?



The two-year-old Rockland (N.Y.) Audubon Society has set an admirable record with its wildlife conservation projects. Among its many activities, the Society has a daily nature column in a county newspaper, has taught nature courses, promoted Junior Audubon Clubs in schools, and written wildlife bulletins, two of which are pictured above. Photograph by H. W. Kitchen, Jr.



THE PRESIDENT

Reports TO YOU

THE growing tendency of major industrial corporations in the United States to take a practical and good public relations interest in conservation of natural resources is most encouraging. A recent official bulletin of the General Motors Corporation, dealing with the subject of water pollution, contained the following statement: "Management has an intense interest in the whole range of the subject of water, from plentiful supply to adequate disposal according to the law of riparian rights. This is a selfish interest; one of self preservation. Our executives must have plentiful sources of good water, and they well realize that they must live up to the golden rule in returning that water to the stream or sub-surface for the next fellow to use."

The magazine *Friends*, distributed by courtesy of Chevrolet dealers, contained in its May, 1949 issue a two-page spread with pictures of activities of our Detroit branch, including a field trip and scenes at Point Pelee. The article emphasized both the recreational and scientific values of the work of the Detroit branch. The pocket-sized *Ford Times*, issued monthly by the Ford-Mercury-Lincoln dealers, gives in its June, 1949 issue the story of our continent-wide system of national, state, county and municipal parks and stresses their contribution to the happiness and welfare of the people.

The *Red Triangle*, house organ of the Continental Oil Company, gave a two-page account, with pictures, of the joint project of the Society and the U. S. Fish and Wildlife Service designed to find means of protecting and restoring the whooping crane.

NEW ATTITUDE TOWARD WILDLIFE CONSERVATION

One has only to go back a decade to find a striking difference, compared with the present, in the attitude of some industrial corporation executives toward conservation of natural resources. Growth in public recognition of the fundamental importance of national resources conservation in relation to human welfare has brought us a long way when we remember the adamant attitude of the officials of the Chicago Mill and Lumber Company. When discussing possibilities of establishment of state and federal refuges in the former Singer tract near Tallulah, Louisiana, they flatly stated, "We are just money grubbers, we are not interested in ethical considerations." Theirs was the old "public-b damned" attitude.

When the federal government acquired what is now the Aransas National Wildlife Refuge in Texas, it did so subject to a mineral lease in favor of the Continental Oil Company. The heart of the specialized wintering habitat of the few remaining whooping cranes is on the marsh portion of that refuge. Recently the oil company sublet its mineral rights in that area to the Western Natural Gas Company of Houston, which has completed exploratory operations and is about ready to drill the first experimental well. Your Society has been in friendly touch with the principal officials of both the Continental Oil and the Western Natural Gas companies, who have evidenced genuine and sympathetic interest in a solution of the problems involved in completing their search for oil and at the same time furnishing adequate protection to the cranes. Among other things, the companies agree that

drilling, reworking, road building and pipe laying operations will be confined to the six months of the year when the cranes are not there. The Society has been consulted with regard to choice of drilling sites and alternatives, and as to methods of preventing obstruction of the natural flow of water through the ponds on the marsh; also as to means of minimizing chances of pollution and of disturbance by operating crews. The answer should be known by September as to whether the experimental well, a relatively shallow one, produces oil or gas, or proves to be a dry hole. We are not wishing the oil or gas company bad luck, but hoping for the sake of the cranes that neither oil nor gas will be discovered. If an oil or gas field were to develop, it would be difficult to entirely avoid some damaging changes in the wintering habitat of the birds.

Still another illustration of the tendency of our corporations to cooperate with your Society has recently been furnished by the Southern California Edison Company. It notified us in May that it wanted a 250-foot strip through the heart of the San Gabriel River Wildlife Sanctuary near Los Angeles for a high power transmission line to bring juice to Los Angeles from Boulder Dam. In our opinion this would have ruined that sanctuary, which is serving a rapidly increasing number of citizens, not only of Los Angeles County, but of southern California. After exchanges of letters and interviews with the officers of the company and its right-of-way personnel, in which Mrs. J. H. Comby, our Southern California Representative, Mrs. O. M. Stultz and Mrs. Gertrude Woods, director and assistant director of the sanctuary, and a number of influential friends participated, a decision was mutually arrived at for an alternative route. This will have relatively little effect on the value of the sanctuary and the educational uses of it by the public.

VISIT TO VINGT-UN ISLANDS SANCTUARY

Just across the bay from bustling Houston and Galveston is a sparsely populated,

marshy country, highly attractive to wintering geese and ducks and to many forms of wildlife throughout the year. Just off Smith's Point lie the Vingt-Un Islands, six in number, supposed to have been used as a base by Lafitte the pirate in days now far away and long ago. These are now a state sanctuary but your Society has, since 1931, furnished the protection accorded the large and beautiful congregation of nesting water birds for which the islands are now famous. In late June, your President visited these islands, as has been his annual custom for many years, in company with good friends of the Houston Outdoor Nature Club, Bill Rheney, known to those of you who participated in the Society's station wagon and boat tours in south Florida last winter, brought the "Egret" over with him on a trailer in early May and has been living on it while guarding the roseate spoonbills, American and snowy egrets, white and white-faced glossy ibises, Louisiana, black-crowned night and Ward's herons. With an alligator or two and some gallinules, these birds make up



Alligator photographed by Allan D. Cruickshank.

the wildlife population of these alluring islands shimmering in the noonday Texas sun.

When the shrimp are in the bay, many a trawl net is out. On any reasonably fair day, the waters surrounding the island are



John H. Baker, with Warden P. O. Davenport, inspects the sanctuary sign on Second-Chain-of-Islands, Texas. Photograph by Paul Zahl.

well dotted with skiffs with outboard motors, in which sport fishermen from nearby cities are trying their luck for red-fish and sea trout. The Society's signs are prominently displayed on the islands. The tameness of the birds demonstrates that the people visiting the area cooperate in avoiding disturbances through landing or walking on the islands out of curiosity, or for other reasons. Oil or gas wells stretch westward as far as the eye can see, each with its surrounding pilings. Half a mile to the north is a great "flare" and a platform on stilts with tanks on it. These oil and gas wells have been drilled on submerged land in the bay. The State School Land Board has cooperated by agreeing in recent years not to lease the section of submerged land in which the islands lie, and to place a seasonal limitation on drilling operations in adjacent sections.

As Bill Rheney puts it in one of his re-

Young and adult spoonbills, young white ibis and American egrets on Vingt-un Islands Sanctuary. Photograph by W. Bryant Tyrrell.



ports, "Now that the young birds are pretty well grown, the crowding of the island shores by the birds reminds me of a Sunday at Coney Island or Miami Beach." It is fortunate that these islands have state sanctuary status. That is not true of many of the other key bird nesting islands on the Texas coast and it is your Society's aim to bring about more definite assumption of responsibility for permanent sanctuary status of the other islands, by either the state or federal government.

PROPOSED DAM PROJECT ABANDONED

You may remember our mentioning during the past year the issue over the proposed construction of the Glacier View Dam in Montana, which, if constructed as planned, would have flooded a considerable area in Glacier National Park. This project was opposed by the Department of the Interior and by national conservation organizations, including your Society. We are happy to inform you that the U. S. Engineers, sponsors of this project, have officially abandoned it and it is not to be part of the engineering plans for flood control in the Columbia River Valley.

ORGANIZATION TO AID OLYMPIC NATIONAL PARK

The issue continues as to whether or not heavily forested boundary areas of the Olympic National Park in Washington should be taken out of the park and used commercially. Olympic Park Associates, Inc., has been formed recently to oppose the lopping off of portions of the existing park for commercial purposes. Your Society supports the present objectives of Olympic Park Associates, Inc. The roots of this issue lie in the fact that the capacity of the lumber mills, and the size of the laboring populations serving them in nearby Washington towns, are considerably in excess of needs to harvest the timber supplies now available to them. The commercial pressure to absorb portions of the park will therefore continue until such time as it becomes clear that national public opinion will not stand for such lopping



Photograph of bear grass and Mount Gould by Hileman, Courtesy Glacier National Park

off for the benefit of a few, or until reorganization of the mills is undertaken to cut down their capacity in proportion to the quantity of timber available.

YOUR PRESIDENT'S FIELD ACTIVITIES

Your President has been much on the road. In late April he had the honor and privilege of addressing the annual meeting of the Garden Club of America in Nashville, Tennessee, participating in an "Information Please" panel on horticultural, National Park and conservation matters. In early July he spoke under the auspices of the Chautauqua Bird and Tree Club on "Audubon Day" at Chautauqua, New York, about the objectives and program of the Society; this as part of a program in which our good friend, Senator Spessard Holland, former governor of Florida, addressed the gathering on, "The Everglades National Park." In late June he visited the Audubon Nature Camp at Kerrville, Texas, now in its second year of operation, where, among others, two well-known members of the Society's staff,

Dorothy Treat and Alexander Sprunt, Jr., are instructors. In New Orleans he met with an influential group of citizens who organized a new branch of the Society. What could be more appropriate than an Audubon Society in this community where John James Audubon lived and left memories—a city proud of its Audubon Park, with people living on Audubon Place!

ORGANIZING A BRANCH SOCIETY

All of which reminds us that the number of the Society's branches is growing apace and that newly forming or existing clubs, societies, or other groups throughout the country, which may wish to consider branch status, can now obtain from Audubon House in New York City a suggested form of constitution and bylaws and a memorandum entitled, "Why and How to Organize a Branch of the National Audubon Society."

[We invite your attention to an article on page 246 of this issue which gives further details on this subject.]

Birds Make Housing Plans Too!

Through her backyard research, the author shows that even birds build homes according to blueprint specifications

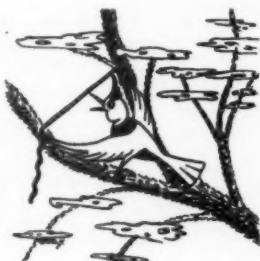
By Mary B. Kilcawley

A HUMMINGBIRD cradles her nest, a gossamer gem, on the slender bough of a tree. A bank swallow scoops out a tunnel from one to six feet long and consolidates the soil at its end in order to make a suitable cavity for a nest. The hummingbird's nest is a work of art and the preparation for the swallow's is an engineering feat. Yet, like all other birds, they build their nests without instruction, illustration, or practice. That is really something to ponder.



That birds make blueprints for their nests may seem an exaggerated simile, but from my own observations I know that the females of some species make what would be blueprints were they put on paper. For example, the female robin may substitute her body, or some part of it, for a yardstick or a compass. The techniques that she uses depend upon where she is planning to build, whether on a platform, or the branch of a tree.

If she selects a platform for her nest site, the making of the blueprint is comparatively easy. She sits down on the platform and fluffs out her feathers, either to measure the space or to get the feel of the nest. Then she lifts her body, turns it a bit, squats down, and moves her feet so fast that her body shivers violently. She makes two or three turns to measure the platform for working space. The next test is to tilt her body forward until she rests on her breast; while in this position, she jumps her feet back and forth furiously, and holds her tail down. Thus, she tests for the space that she will need while using her breast as a pestle to mold the bulge in the nest. If there are no



Drawings by Charles Daly

obstructions or disturbances, such a blueprint may be finished in a matter of minutes.

The oak tree in our backyard is a popular home-site for birds and I have learned much by faithfully watching the birds that frequent it. One robin gave me a fairly complete demonstration of blueprint making.

My attention was attracted one morning when I heard a rustling in the honeysuckle bush under my window. As I looked down, I saw a robin struggling among the small branches, as if too entangled to extricate herself. A few minutes later, I saw her perched in the very top of the shrub. She kept making tender clucking sounds as she peered down into the clump through which she had just crawled.

Then she flew down to a low branch of the oak tree and hopped along it to a point where it dips sharply and examined a fork in the branch there. She hopped back and forth on each branch as if spacing off distances. Now and again she would stop and tilt her body forward to measure the space between the main and forked branches. On two occasions she apparently overreached and each time uttered a muffled squawk when her breast hit the opposite branch. She straddled the distance between a twig of the forked branch and the main branch. Undoubtedly this was to test the strength of the twig which could be used for an anchor. After completing her measurements she flew to the top of the tree and remained there for a long time before dropping down into the garden to look for worms.

An hour or two later, I heard a clucking and saw the robin standing on a branch of the popular tree directly across the driveway from the oak tree. She flew from there to a branch of the oak directly opposite the one on which she had made her first measurements. She measured this one at a fork just as she had the other one. The space between the two was filled with the leaves of a twig. She would stand still as if listening, then thrust her head under the leaves and move it around, yank it out, stretch her neck as far as she could, and swing her head over the top of the twig. Several times she stopped suddenly, whirled her body completely around, tilted her



Continued on Page 268

COME ON TO DETROIT

For the first time in its history the National Audubon Society is holding its annual convention outside of New York City. From Saturday, October 15, to Tuesday, October 18 inclusive, members of the Society throughout the United States and Canada will meet at Rackham Memorial Auditorium, Detroit, the 45th Annual Meeting headquarters.



Meet Your Hosts

Here are some of the activities of Detroit Audubon Society members who will be your hosts at the 1949 National Audubon Convention.

E. G. Boyes, President of Detroit Audubon Society, catches bird calls in a parabolic reflector while Mrs. Boyes operates the recorder.



Besides birds, members of the Detroit Club are interested in insects, plants, and other inhabitants of our natural world. Arthur W. Andrews shows a junior member how to knock insects off a bush and collect them in a cloth.

On the annual spring bird count, Wilbur Bull and Bob Burns are up early for the dawn patrol.

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DETROIT!



Convention Highlights*—October 15—registration, welcome, tour to Cranbrook Institute of Science and Greenwich Village; October 16—bird hike to Point Pelee, Canada—Audubon breakfast—Jack Miner Sanctuary—John H. Baker's "Audubon Message"; October 17—Audubon Objectives and Opportunities. Speakers: Ludlow Griscom, Josselyn Van Tynes, Arthur A. Allen, Wildlife Tour Hour—Brookfield, Sprunt, Allen, Morrison; October 18—Branch reports and Junior Audubon Club activities—Sanctuary reports—Annual banquet—Speakers: Sen. Arthur H. Vandenberg and others. *Subject to changes between now and convention time.

Hosts

All photographs
courtesy
Friends Magazine.



Here along the beach of Point Pelee, southernmost tip of Canada, your hosts will take you on an early morning hike to observe flocks of ducks, geese and other water birds resting offshore.



E. A. Eichstedt (center) leader of 65 club members on a tree hike, points out the differences in the bark, leaves, and other characteristics of a juniper compared with other trees of the Detroit region.

Walter Nickell, pointing at right, well-known ornithologist and leader of a bird-watching group. Your Detroit hosts remind you to bring binoculars and cameras for several planned trips.



Audubon Guide To Bird Attracting

A department in which our readers can share with each other what they have learned about how to attract birds.

By John K. Terres

ONE summer day a brown thrasher feeding two fledged young ones on my lawn in a southern New Jersey village proved to me that I had harvested my first crop of these birds in all the years that I had lived there. The previous spring I had planted a thicket of barberry in back of my garage in which the thrashers were the first birds to nest. Since then, catbirds, cardinals, robins, song sparrows, wood thrushes, and other birds have dwelt in the thickets which now occupy all the former bare spots under our backyard shade trees. For a long time I had wanted a variety of birds around our home, but a traveling job that kept me away most of the time had prevented my going ahead with a planting plan which I was sure would reap a bumper harvest of birds.

NATURAL APARTMENT HOUSES FOR BIRDS

We started our planting work ten years ago. At that time we had only a few tree-dwelling blue jays, robins, and starlings. Now we have a dozen thicket-nesting species that soon found our clumps of shrubs to their liking. Slowly we have built a natural apartment house for birds by supplying them with varied nesting sites that suit the heights above the ground that each species prefers to nest. From shade-tolerant Japanese spurge, one-foot high, the different thicket levels of our plantings rise up from low-growing coralberry and barberry, to the taller blue-berried viburnums, mountain ash and dogwoods. Not only do our varied bird species now have nesting sites not available before, but they have a fruit supply through most of the year. Interspersed among our fruiting trees and shrubs, we also planted evergreen thickets of low-growing yews, junipers and arbor-vitae to give our birds all-year-round cover.

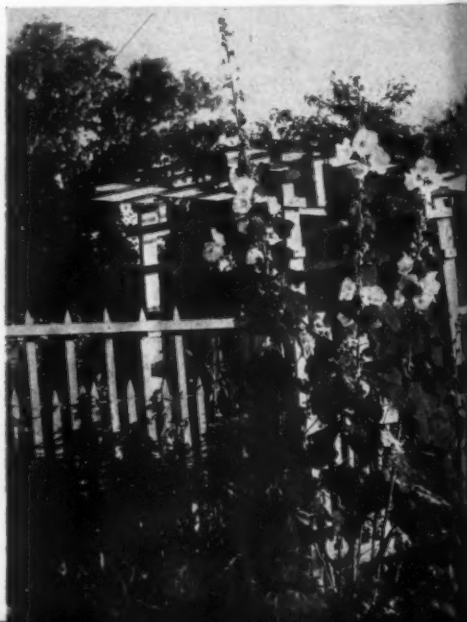
More Birds for your Garden

Trees and Shrubs to Bring Birds to Your Yard

PLANT COMPOSITION AND SPACING

At home we made our formal evergreen ornamental plantings in the front of the house and planted deciduous shrubs in our backyard especially for the birds. Tall and low shrubs surround the bases of our large trees and the shady sides of our garage, where the native spice-bush, maple-leaved viburnum and other shade-tolerant, fruiting species will grow. A garden wall or trellis is a fine support for climbing vines—Virginia creeper, Japanese honeysuckle, grapes and ivies—which may give birds both food and cover. On the outside of our fireplace chimney, a Virginia creeper clings to the brickwork, making a leafy roosting retreat for sparrows and other birds.

Backyard beauty is enhanced by selective tree, shrub and flower plantings that are also useful to birds. Hollyhocks photographed by Michael Pakeltis.



PLANTINGS FOR SMALL GARDENS

In a small garden with little or no shrubbery, an increase in birds depends almost entirely on planting and building up shrub environments. To do the most good, plantings should supply the needs of the birds throughout the year. Mulberries, serviceberries, elderberries and other shrubs with soft fruits ripening in June and July will offer food to adults and their young; wild cherries, and the fruits of viburnums and dogwoods attract migrating flocks of birds in late summer and early fall; birches and other seed-bearing trees provide food during shortages in late winter and early spring.



This brown thrasher, photographed by Allan D. Cruickshank, chose the thorny branches of a Japanese barberry in which to nest. The red berries persist through the winter when most other fruits are no longer available.

We were careful not to plant every patch of open ground in the yard, observing a well-known biological rule which recognizes that extensive growths of any one kind of plant do not produce a maximum of bird species. It is the interspersed, mixed plantings of trees, shrubs, herbs and grasses—plantings which have shrubs meeting woodlands or openings of grass and other vegetation—that attract the greatest varieties of birds and other wild creatures. We planted our two-to-three-foot high deciduous shrubs about three feet apart to assure a dense ground cover from the start. We were careful to put only the kinds of plants in the shaded places that our nurseryman assured us would grow there, reserving the sunny places for those species that require plenty of light. Our plantings are spotted in clusters on the lawn, leaving grassy places for robins, chipping sparrows,



American elderberry (photographed by Rutherford Platt) is ornamental, and its fruit is eagerly sought by 43 species of birds and several kinds of fur-bearing animals.

and catbirds. Most of these shrub clumps have some evergreens planted in them to make winter shelter for birds and to offer them escape cover into which they may plunge when a hawk or shrike appears.

WHERE TO BUY THE PLANTS

We had better success with spring planting than fall, and we ordered our planting stock from both state and privately-owned nurseries, wherever we could get healthy, native species with abundant fruiting qualities. Native plants are not always necessary, if one is sure that the fruits of certain exotic species are acceptable to birds. Some nurserymen have observed which fruits birds seek and can recommend for planting the introduced species that birds prefer.

Some nurseries have "cull" plants which may be cheaper to buy, although lower cost should not always influence the choice of planting stock. We have found that more expensive, but good healthy plants, are cheaper in the long run in preference to less expensive and sickly stock which may not survive. Trees for reforestation are usually cheaper to buy in state-owned nurseries, some of which are now raising shrubs and other plants whose fruits or seeds attract wildlife.

TWELVE PAIRS OF BIRDS AN ACRE

How much can bird species be increased in the backyard? The theoretical limit may be reached when every available nesting site for every local kind of bird has been created. Planting trees, shrubs, and vines and erecting bird houses and



The beautiful June flower clusters of gray dogwood (above) make this low shrub an attractive plant for the garden. It forms dense thickets, endures city smoke, and produces blue fruits eaten by more than 20 different kinds of birds. Photograph courtesy Soil Conservation Service.

The pale blue berries of red cedar (photographed by Edwin Way Teale) are relished by more than 100 species of birds and its dense evergreen branches provide them with nesting sites and winter roosting places.



bird baths will attract birds to your yard and make them satisfied to stay there. On the 12-acre Roosevelt Bird Sanctuary at Oyster Bay, Long Island, the National Audubon Society through balanced planting and protection, has increased birds from a few breeding species each year to 145 breeding pairs of 30 different kinds, or about 12 nesting pairs on each acre. This is exceptionally high compared to most woodland bird populations of about two pairs an acre and it has been achieved on a fair-sized tract of land. But a wide variety of birds is not an impossible goal for people whose yards have only an acre of ground or less.

EXPERIENCE WITH OTHER WILDLIFE PLANTINGS

During the eight years that I worked with the U. S. Soil Conservation Service we planted more than 20 million trees, shrubs and vines for erosion control and wildlife conservation on farms in the northeastern states. Early in our planting experience we discovered that nursery-grown trees, shrubs, and vines were superior to wild plants dug in the field and then transplanted to farms. Nursery stock from our own nurseries not only survived better, but fruited more consistently and bore a heavier crop. We also found that spring plantings usually survived better than fall plantings, perhaps because of greater soil moisture in spring and the generally cooler temperatures.

SHRUBS BEST SUITED TO POORER SOILS IN THE NORTHEAST

Our wildlife plantings, made in eroded gullies, or planted as soil-conserving hedgerows, and borders along eroded, open woodlands, were either native plants, or hardy introduced species. We considered those plants as most successful which survived on poor, dry soils, and also yielded fine crops of fruit. Some of those producing fruits and cover for birds and other kinds of wildlife were: coralberry, *Symphoricarpos orbiculatus*; bayberry, *Myrica carolinensis*; European mountain ash, *Sorbus aucuparia*; silky cornel, *Cornus amomum*; American hazelnut, *Corylus americana*; Tatarian honeysuckle, *Lonicera tatarica*; Multiflora rose, *Rosa multiflora*; highbush cranberry, *Fiburnum trilobum*; and Virginia creeper, *Parthenocissus quinquefolia*.

CARE OF TREE AND SHRUB PLANTINGS

Wildlife tree and shrub plantings that are allowed to grow uncontrolled may, within 10 or 15 years, outgrow their usefulness. Some plants grow swiftly and, where crowded together, are usually highly competitive. Unless they are managed, woody plants will grow into a veritable backyard jungle, with the shade-tolerant shrubs and small trees eventually topping and crowding out those which require plenty of sunlight. At home we use a pair of pruning shears and a small handsaw at least once a year to cut back or thin out

some of the more vigorous-growing plants. In this way we not only keep our backyard neater, but control our plants which continue to provide varied foods and nesting sites for birds.

Trees and Shrubs for Your Birds

Some Suggested Plants for the Northeastern States*—Minnesota, Wisconsin, Michigan, New York, Vermont, New Hampshire, Maine, Massachusetts, Connecticut, Rhode Island, Iowa, Illinois, Indiana, Ohio, Pennsylvania, New Jersey, West Virginia, Maryland, Delaware, Missouri, Kentucky and Virginia.

Small Trees (10 feet to 30 feet high)

Common Name	Scientific Name	Fruits or Seeds Available
Hackberry	<i>Celtis occidentalis</i>	Sept. to Oct. Sometimes persist all winter.
Hawthorn	<i>Crateagus spp.</i>	Late summer thru winter.
Flowering dogwood	<i>Cornus florida</i>	Sept. to Feb.
American mountain ash	<i>Sorbus americana</i>	August to March.

Tall Shrubs (6 feet to 12 feet high)

American elder	<i>Sambucus canadensis</i>	Aug. to Oct.
Nannyberry	<i>Viburnum lentago</i>	Aug. to Sept., commonly persistent.
Arrowwood	<i>Viburnum dentatum</i>	Oct. to Dec.
Serviceberry	<i>Amelanchier canadensis</i>	June to August.
Red osier	<i>Cornus stolonifera</i>	July to Sept.

Low Shrubs (2 feet to 6 feet high)

Common Name	Scientific Name	Fruits or Seeds Available
Maple-leaf Viburnum	<i>Viburnum acerifolium</i>	Sept. to Oct., often persistent to following July.
Coralberry	<i>Symphoricarpos orbiculatus</i>	Sept. to June.
Gray dogwood	<i>Cornus paniculata</i>	Aug. to Nov.
Bayberry	<i>Myrica carolinensis</i>	June to April

Vines (climbing or thicket-forming)

Climbing bittersweet	<i>Celastrus scandens</i>	Sept. to Dec.
Summer grape	<i>Vitis aestivalis</i>	Aug. to Sept., often persistent.
Virginia creeper	<i>Parthenocissus quinquefolia</i>	Aug. to Feb.

* States defined as northeastern in Conservation Bulletin No. 7, "Plants Useful in Upland Wildlife Management," U. S. Department of the Interior, Fish and Wildlife Service, 1941.



Anyone who has lived along the Atlantic Coast knows the familiar dark green thickets of bayberry. An inhabitant of the sand dunes, it is host to myrtle warblers and tree swallows which are particularly fond of its gray, waxy berries. Bayberry also grows in heavy clay soils. Photograph by Edwin Way Teale.

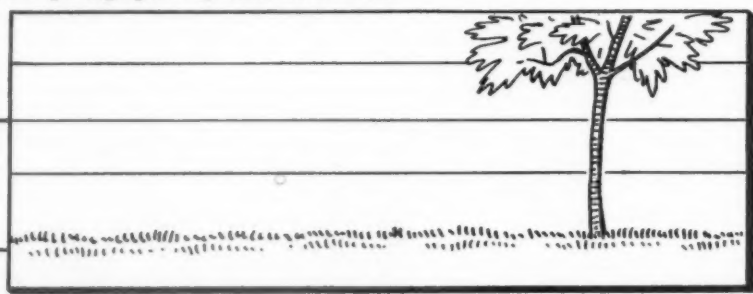
The incredible Oregon grape does not resemble a grape, looks like eastern holly, but is a Pacific Coast barberry. This attractive evergreen shrub produces fine clusters of berries, is thicket-forming, and resistant to black rust. Photograph courtesy Soil Conservation Service.





Blackberries are eaten by 146 species of birds (stomach records), but if planted in the garden, choose cultivated varieties. Wild species harbor plant rusts which attack cultivated blackberries and raspberries. Blackberry blossoms photographed by Rutherford Platt.

The attractive mountain ash bears scarlet fruits which may persist from August to March. Eight kinds of birds feed upon the fruits of the American species. Photograph courtesy Soil Conservation Service.



← BEFORE PLANTING

Some birds that nest in tree-trunks and hollow branches:

Woodpeckers, crested flycatcher, bluebird, sparrow hawk, screech owl, chickadee, tufted titmouse, starling.

Some birds that nest in higher bushes and saplings:

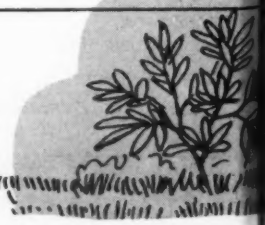
Yellow- and black-billed cuckoos, yellow warbler, chipping sparrow, mourning dove, goldfinch, cedar waxwing, kingbird.

Some birds that nest in low bushes:

Field sparrow, song sparrow, chestnut-sided warbler, catbird, cardinal, brown thrasher

Some birds that nest on the ground:

Ovenbird, black and white warbler, junco, veery, towhee, bob-white quail, whip-poor-will.



For plant lists and information on planting for birds and other kinds of wildlife in all regions of the U. S., the following are useful references:

Baker, John H. (Editor)

1943. *The Audubon Guide to Attracting Birds*. Published by *Halcyon House, Garden City, New York*.

McAtee, W. L.

-1917. *How to Attract Birds in the Middle Atlantic States*. U. S. Dept. Agr. *Farmer's Bulletin* #844.

-1918. *How to Attract Birds in the East Central States*. U. S. Dept. Agr. *Farmer's Bulletin* #912.

-1924. *How to Attract Birds in the Northwestern United States*. U. S. Dept. Agr. *Farmer's Bulletin* #760.

-1931. *How to Attract Birds in the Northeastern United States*. U. S. Dept. Agr. *Farmer's Bulletin* #621.

-1936. *Groups of Plants Valuable For Wildlife Utilization and Erosion Control*. U. S. Dept. Agr. *Circ.* #412.

-1941. *Plants Useful in Upland Wildlife Management*. *Cons. Bulletin* #7, U. S. Dept. Interior, *Fish and Wildlife Service*.

Van Dersal, William R.

1938. *Native Woody Plants of the United States*. U. S. Dept. Agr. *Miscell. Publ.* #303.



Mulberries are eagerly sought by birds. The white mulberry (above), a small to large, rapid-growing tree, fruits from May to July. Photograph courtesy Soil Conservation Service.

(What kinds of trees, shrubs and vines attract birds to your backyard? Which ones thrived best and which of your species do birds seek for their fruits? We'd like to know about your individual planting experiences and will welcome letters that

we may quote in this column. Remember to send us just bits of information—not a full-sized article—that will tell us and our readers which plants you found to be most successful in attracting birds to your garden.)

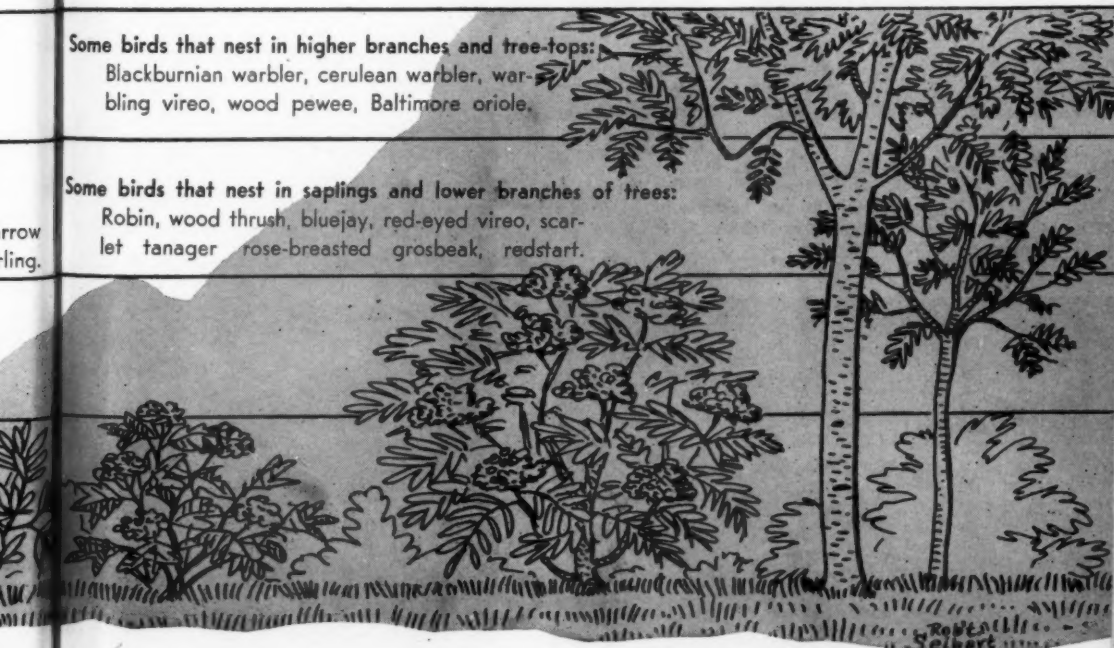
NESTING HEIGHTS OF VARIOUS KINDS OF BIRDS

Some birds that nest in higher branches and tree-tops:

Blackburnian warbler, cerulean warbler, warbling vireo, wood pewee, Baltimore oriole.

Some birds that nest in saplings and lower branches of trees:

Robin, wood thrush, bluejay, red-eyed vireo, scarlet tanager, rose-breasted grosbeak, redstart.





A basin (left) or shallow pan, filled with water and set on the lawn, is the simplest of all birdbaths. Robins at birdbath photographed by Esther Heacock.

Instead of building a birdbath, you may prefer to buy a ready-made one of concrete or terra cotta (below). If you wish to lure vireos and flycatchers, be sure that your birdbath is under a tree or shrub branch that sweeps down just above the water. Myrtle warblers at birdbath photographed by H. M. H. Kimball.



Mrs. Paul A. Becker, Owatonna, Minnesota, used pieces of limestone to build this birdbath (above) in her backyard. It has one large central bath and two side baths (below).



BIRDS AND WATER

The spring drouth of 1949 in the northeastern states has underlined the great need that birds have for water. As important to them as food and cover in the backyard, water is not only life-giving, but, when present, will prevent birds from flying long distances away from the garden to get it. A robin running across a parched lawn, with its mouth open, or a mourning dove peering wistfully into a dried-up pool, are signs of creatures which are mutely crying out for a drink of clear, cool water. Not only do they need water for drinking, but birds also enjoy bathing frequently, especially during the hot, dry months of the year.

Birdbaths, or drinking places, are not difficult to make. They vary from the simplicity of a shallow pan filled with water and placed in the ground, to the ornate, sculptured birdbaths in formal gardens of large estates. One feature all of them should have in common—they should range in depth from about one-half an inch to no more than two or three inches at their deepest part. Birds are afraid of deep water and when bathing along a stream's edge, or in a woodland pool, they seek the shallows and small trickles of water over rocks and other places in which to flutter. Some of the illustrations on this page will show you different kinds of birdbaths which you may build for your garden.

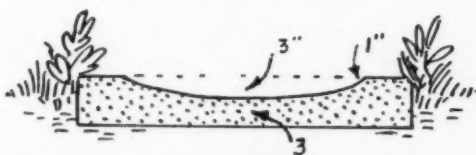
Keeping the birdbath filled with water is fun for children and may give them an early interest in birds. Photograph by Helen G. Cruickshank.



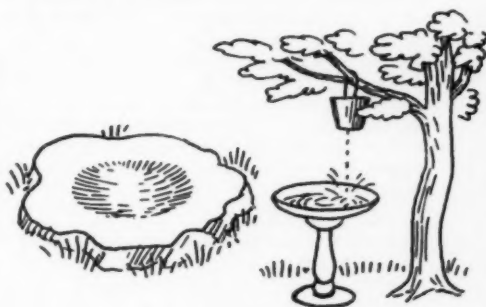
BUILD IT YOURSELF

Ground level birdbaths may be made by pouring a slab of concrete into a scooped-out depression two or three feet in diameter.

Mixture: 4 parts sand or gravel to one of cement. Mix thoroughly with hoe and add water until mix flows evenly.



Running water attracts birds. Water dripping into the birdbath from a bucket (below) with a small hole in the bottom will attract shy woodland birds.



For unique birdbaths, chip one in a flat-topped rock (above) or pour cement into a depression in a pile of arranged boulders (below).



A shell of the giant clam, *Tridacna gigas*, makes a novel birdbath (below). Large shells of this species can be used on the ground, or mounted on a stump or rock.



Robt. Seibert

Book Notes

By John K. Torres

CHILDREN AS NATURALISTS

By Margaret M. Hutchinson, Macmillan Co., New York, 1948. 5 x 7½ in., 184 pp. Illus. with photographs and sketches. Indexed. \$2.25.

The author, who has her own Junior School near Haslemere, England, says that it was not what she learned in her nature lessons as a child that stuck with her, but what she gleaned from hedges, woods and ponds. Her aim is to show how children up to 11 years of age may find the joy of discovery in the field and avoid the often deadening effect of nature study taught in the classroom. The book proceeds from outlines of outdoor projects for different age groups to quests for mammals, birds, insects, trees, pond creatures and other things, and concludes with an interesting chapter on teaching the child an approach to animal and plant ecology. This is a good book for teachers, parents, and others who wish to awaken a child's interest in nature.

STRANGE PREHISTORIC ANIMALS AND THEIR STORIES

By A. Hyatt Verrill, L. C. Page & Company, Boston, Mass., 1948. 6 x 8¾ in., 262 pp. Illus. with pen-and-ink sketches, one color plate. Indexed. \$3.75.

A popular treatment of strange animals of the past and the present that begins with life in the seas followed by tales of flying reptiles, dinosaurs, the ancestors of present-day birds, sea serpents, the fantastic Moropus, mastodons, and present-day monstrosities including giraffes, gnus, wart hogs, the aardvark and other bizarre creatures. Fabulous mythological animals—dragons, fauns, phoenixes, hydras and others—are discussed in this interesting book. An appendix gives the geological periods and their fauna and a list of animal fossil names and their meanings.

MAMMALS OF LAKE TAHOE

By Robert T. Orr, California Academy of Sciences, San Francisco, Calif., 1949. 6 x 9¼ in., 127 pp. Illus. with line drawings by George and Patricia Mattson. \$4.00.

The author, Curator of the Department of Birds and Mammals, California Academy of Sciences, and Assistant Professor of Biology, University of San Francisco, has written a beautifully illustrated book which should help anyone interested in the natural history of the high Sierra Nevada to a fuller enjoy-

ment of that rugged country. Following a brief historical account of Lake Tahoe and a description of the region, the author discusses mammal classification and gives a key to the 53 native kinds found there. Most of the book treats each mammalian species, its description, general and local distribution, and habits. There is a glossary, list of references, and regional map on the inside back cover.

FOR YOUNG READERS

DAVY OF THE EVERGLADES

By Eleanor Frances Lattimore, William Morrow & Co., New York, 1949. 5¾ x 8¼ in., 127 pp. Illus. with sketches by the author. \$2.00.

For children six to ten years of age, this is the story of a boy who lived in southern Florida, of his adventures with alligators, turtles, birds, a raccoon, Seminole Indians, and a young deer. Miss Lattimore, in the simple, direct style of her 14 previous juvenile books, has written another delightful story that shows her warm understanding of young hearts and minds.

VULPES THE RED FOX

By John L. and Jean George, E. P. Dutton & Co., Inc., New York, 1948. 6 x 8¼ in., 184 pp. Illus. by Jean George. \$2.50.

A delightful story of the red fox which tells a lot of natural history incidental to a young fox's growing to the wisdom of an adult. We learn with Vulpes about the dangers of his world; how and what he hunts in the changing seasons; of his first meeting with Fulva, his mate, and the family they raised on the hill above the home of Buck Queen, the fox hunter. There are exciting chases in which Vulpes carries on a friendly duel of wits with a Red Bone hound. Best of all is the famous hunt of Vulpes that made regional history. A book for both adults and children.

BIRD NOTES

By Harry L. Rhodes, Hall Lithographing Company, Topeka, Kansas, 1948. 5 x 7½ in., 305 pp. Illus. with black-and-white sketches and color plates. Indexed. \$3.00.

A third edition of a handbook on birds for school teachers and children. A single page, with a facing illustration, is given to each of 78 species of birds common to Kansas, followed by 53 pages of questions and answers about birds. There are sections on building birdhouses; descriptions of birds grouped according to color; bird habitats; seasonal occurrence, bird migration, and a host of other interesting information. A useful book for both children and adult beginners in bird study.

LISTEN TO THE MOCKINGBIRD

By Irmengarde Eberle, Whittlesy House, McGraw-Hill Company, New York, 1949. 6 x 9 1/4 in., 64 pp. Illus. with wash drawings. \$2.00.

A pair of mockingbirds, with the help of two children, Janie and Bob, manage to raise a family, but only after a battle of wits with a cat, a bull-snake and other enemies. A story to charm 5- to 10-year-olds.

INVITATION TO THE BIRDS

By Virginia S. Eifert, Illinois State Museum, Springfield, 1948. 6 x 9 in., 64 pp., paper-covered bulletin. Illus. with pen-and-ink sketches and wash drawings by the author. Indexed. 15¢.

Another booklet in the Story of Illinois nature series written for school children by the author of many published nature articles. The introduction, a selected bird-book reference list, and sketches of birdhouses, and bird feeders, are followed by text and illustrations of 53 kinds of Illinois birds.

NOTE

The United Nations Scientific Conference on the Conservation and Utilization of Resources (UNSCCOUR) will be held at Lake Success, New York, August 17 through September 5. Wildlife will be one of the major topics; sixty countries will be represented; 500 papers will be presented. The public is invited.

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body forward, bent her tail down, and fanned out one wing.

Later in the afternoon, I saw the same robin alight in the poplar tree, look all around, fly to a broken-off branch of the oak, and from there to the place last tested. This time she just wriggled her body over the top of the twig, snipped off a few bits of leaves, and let them drop to the ground. Then she flew around the trunk of the tree and down into the garden. These — the flyways to and from the nest — were the last strokes to be put on her house plan. Three days later the nest was finished.

Many warblers probably follow a method similar to that of a pair of redstarts which came under my observation. The male flew onto the lowest limb of an elm tree that was clinging to the edge of a ravine. He hopped along the branch to the crotch, looked it over carefully, then hopped back a couple of feet. He did this several times, calling first harshly, then sweetly. After each inspection he would lift up his head and sing a gay song. At the end, he would swing his head from left to right as if expecting to see birds sitting on each side of him. After several announcements he flew down through the ravine. Immediately, a female dropped into the crotch and squatted down as if frightened. Her body moved uneasily as if she were moving her feet around. Suddenly she lifted her right wing and fanned it out. Then she tilted her body as if making ready to walk up the tree sideways. With quick, jerky movements, she lifted her body with her wings and pressed her right foot against the bark. She appeared to take one step up, drop down, take two the next time, and drop down. As she lowered her body each time, her feathers looked as if they might be torn out by rubbing her sides against the rough bark. She measured only the trunk side of the angle. Her movements were so quick that it was difficult to see just what she was doing but, because she did the same thing over and over again, it became apparent that she was testing and measuring. After each complete test, she flew down through the ravine without ever making a sound. Then the male would return and go through his ritual. She made several tests during the two hours that I watched. I wondered if she made all those tests to prove to him that he was wrong and that it was not a satisfactory nesting site. Apparently, his cajolings had no effect because she did not build a nest in that tree.

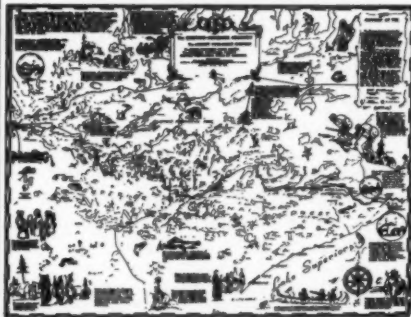
Woodpeckers make many tests before they actually begin to excavate cavities for their nests. They use their bills for chiseling and boring, their ears for soundings, and their eyes to find ways to camouflage the openings to their nests.

Flickers are large, noisy birds, and it is quite easy in early spring to find a pair planning a nest or already building one. One May morning I watched a pair for a long time. The male would fly to a place near the top of a leaning tree and

swing his head from side to side as he chiseled out pieces of bark. After a few strokes, he would give an alarm call, then fly madly toward a female perched in a nearby tree. Each time, as he approached her, she dropped down toward the ground and alighted on the trunk of the chosen tree. He pursued, and as they ran around and around the tree on their way up, it looked as if he were driving her up to the spot that he had marked. Each time, when she reached the place he had chosen, she attacked it so vigorously that pieces of bark flew in every direction. In a few minutes she would fly back to her original perch. Their noisy cries gave the impression that the problem could be solved by argument alone. The female refused to make a boring. She must have known that a leaning, half-uprooted tree was not the safest place for a home.

From my back porch I can watch flickers at work in a bitternut hickory tree. Instead of measuring with their feet, they use their bills to tap off distances. Sometimes they will tap up and down in a straight line with such rapidity that you are sure they are being jerked up and down on a string. They may tap round and round in the same place for some time in order to check by sound for obstructions such as knots or scars. These tests are important for obstructions would prevent them from going deep enough. Cavities must not only be deep, but also have space enough

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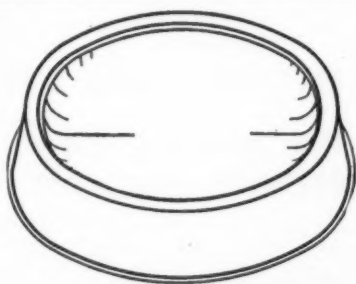
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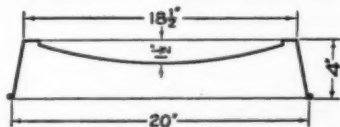
above the opening for an emergency cavity. The most interesting of their tests is the one that decides where the opening shall be. The part of the tree in which they excavate must be dead, but the twig that covers the opening must be alive. How do they know this if the nest is built before the twigs have leaves on them? Perhaps by sound, for dead wood responds differently to their tapping.

Some blueprints carry particular nest-building specifications. A catbird includes something white in its nest, cellophane has been used; wood thrushes weave newspaper's into their nests. A crested flycatcher puts a snake skin in her nest. A jackknife, a piece of crockery, or just any old thing that shines will do for an eagle's or a cormorant's nest. Feather accessories may not be specified in every barn swallow's blueprint, but a Maine farmer has observed that the swallow that builds in his barn always sticks a feather upright in the front of her nest before the mud dries. Visitors may think that this bird is an artist but the farmer thinks she is just a bit cautious, for a barn floor is a dangerous place for little birds.

If you like to watch birds I can recommend "blueprint observations" as one of the most fascinating themes to follow in your study of bird behavior.



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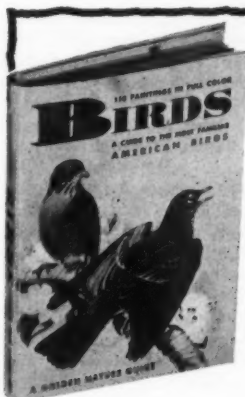
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NATURE IN THE NEWS *Continued from Page 237*

destroyed or whose parents have been killed, the National Audubon Society makes public a tested recipe developed by Dr. Southgate Hoyt of the Ornithology Department of Cornell University. It has proved successful, even for species such as woodpeckers, which are hard to maintain on artificial fare.

The Hoyt diet for a day's rations for a bird the size of a robin consists of 6 teaspoons of Pablum baby food, 3 teaspoons Geissler's mockingbird food, 1/4 teaspoon calcium lactate, 3 drops cod-liver oil, 1 teaspoon ground hard-boiled egg and 2 teaspoons ground carrots.

This mixture, the Society believes, should serve the needs of any young insectivorous bird until it is able to forage for itself. With regard to injured adult birds, however, the Society recommends that the victims be turned over to the local humane society or a similar organization competent to know whether the injuries are too severe for recovery.

(Editor's Note: What effect has the long spring and summer drouth of 1949 in the Eastern States had upon birds in your community? Please write us at once of your experiences so that we may print your letters, or quote parts of them, in future issues of Audubon Magazine.)

About the Authors

Haydn S. Pearson (*Summer Dawn*) writes nature editorials for the *New York Times* and *Boston Herald*. A syndicate of some 80 newspapers use his nature pieces and he has written three books: "Country Flavor," "Sea Flavor," and "Countryman's Cookbook," with another ("Countryman's Year") to be published in September, 1949. Once a month, in good or bad weather, he leaves his home in Waban, a suburb of Boston, for a walking trip in Maine, New Hampshire or Vermont. Dressed in old hiking clothes, he stops to chat with farmers, or to contemplate skies, ponds, birds and other features of the out-of-doors on which he keeps careful notes for his editorials.

Virginia S. Eifert (*A Lake for the Lincoln Country*) will be remembered for her articles in previous issues of *Audubon Magazine*. She has been editor of museum publications at Illinois State Museum since 1939, and curator of birds since 1947. She has written two of the museum booklets in the Story of Illinois nature series, her latest of which is "Invitation to the Birds." Mrs. Eifert has a husband who teaches biology, and a three-year-old son who, she says, is as much at home on a deer trail, during the family vacation in the north



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woods, as he is in his own backyard. Born and reared in Springfield, Illinois, Mrs. Eifert began learning about birds when she was ten years old, and is still making new bird finds in the Lincoln Country.

Just because you've lived most of your life in the city doesn't mean that you can't be a keen observer of birds. Mary B. Kilcawley (*Birds Make Housing Plans Too!*) has spent two-thirds of her life in cities, but says she has never lost her enthusiastic interest in the natural world that she remembers as a child when she lived at the foot of a mountain beside a gently flowing river. She now lives in Troy, New York, and her husband is a professor at Rensselaer Polytechnic Institute. Mrs. Kilcawley taught high school classes for six years, was a Regents Examiner of history for several summers, and has a daughter who taught sociology in college. She has followed birds both here and in Europe and says: "... If introducing little children to the world of birds, flowers and trees can be called a hobby, then that is mine."

In the June, 1947 issue of *Natural History Magazine*, an article, "Life of the Water Film," by Lorus J. and Margery J. Milne won them honorable mention in the annual Westinghouse awards for the best science article published in an American magazine. This is their first appearance in *Audubon Magazine* (*Hummingbird Bar*) and we are glad to introduce the lecturing, writing, researching and radio-broadcasting Milnes to our readers. Besides being, respectively, Associate and Assistant Professors of Zoology at the University of New Hampshire, Lorus J. and Margery J. Milne have co-authored a book, "A Multitude of Living Things," and have had articles published in the *Atlantic Monthly*, *New York Times Magazine*, *The Scientific American*, and other publications.

R. G. Beidleman (*Mrs. White-foot Moves In*) spends his winters as Assistant Professor of Zoology at Colorado A. & M. College, Fort Collins, and his summers as a ranger-naturalist in Yosemite National Park. His avocations are photography, writing, and ornithology.

When Lewis Wayne Walker (author of *Who's Who on the Night Shift*, *Audubon Magazine*, May-June, 1949) sent us his corrected galleys for the concluding part of his owl article, *Talons in the Night*, he was rushing off from his San Diego, California home to lead 150 members of the San Diego Audubon Society on a trip to the Mexican Bird Islands of Los Coronados. Mr. Walker has

been covering a lot of ground, much of it good birding ground, ever since the early 1920's. During the past 15 years, with time out to serve as a Marine Sergeant in the recent war, he has taken 15,000 bird and mammal photographs, used in 1,500 published articles, and turned out a book of verse on the birds of Midway Island. Since the war he has photographed breeding whales from a helicopter, ridden the Colorado River tidal bore for the *National Geographic Magazine*, has been shipwrecked twice in the Gulf of California and is now building his own boat to try it again!

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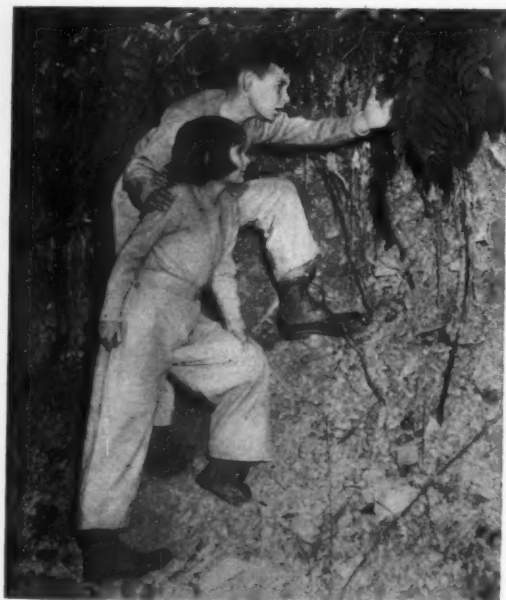
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